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# USSR Report

## ECONOMIC AFFAIRS

No. 1053

## EKO: ECONOMICS AND ORGANIZATION OF INDUSTRIAL PRODUCTION

No. 2, February 1983



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STRUCTURAL SHIFTS IN ECONOMY NECESSITATE RELIANCE ON INTENSIFICATION

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 3-15

/Article by V. P. Loginov, doctor of economic sciences, Institute of Economics of the USSR Academy of Sciences (Moscow): "On Directions and Factors in Intensification of the Economy"/

/Text/ Our country's economy has entered a decade whose typical feature will be increased production efficiency on the basis of its intensification. One must say that the content and speed of the processes of intensification are not the same in various stages of the national economy.

For a long time it was precisely the rates of economic growth that decided the fate of the state. During the prewar period the main economic task was to overcome economic backwardness in the shortest possible period of time, to create a developed industry and, on the basis of this, to reconstruct agriculture and transportation. Carrying out this task made it possible to hold our ground in the struggle to the death against the military machine of Hitler's Germany.

After the war, with an unprecedented scale and time periods, the damaged economy was restored, virgin land was assimilated, industry was developed and its most progressive branches underwent forced development--chemistry, hydro-electric engineering, atomic energy, the electronic industry and so forth. Before the war and during the first postwar five-year plans comparatively inexpensive sources of raw material and fuel were brought into economic circulation, mainly in the European part of the country and in the Urals, and the labor force that was released from agriculture was used. The indicators of economic effectiveness were characterized by stability and a high level. From 1940 through 1970 with an increase in the number of workers and employees in the national economy of 2.66-fold, the gross social product increased 8.14-fold and the national income --8.66-fold; labor productivity in industry increased 4.9-fold, in agriculture --3.2-fold, and in construction--4.48-fold.*

The Limits of Efficient Expansion of Production

By the end of the 1960's and the beginning of the 1970's there was a situation in the national economy wherein the quantitative growth of the economic potential, without reorientation in the direction of qualitative indicators, began to

*"Narodnoye khozyaystvo SSSR v 1970g" /The USSR National Economy in 1970/, Moscow, "Statistika", 1971, p 55.

impede further increase in the effectiveness of public production. The colossal scale of extraction of minerals and the enlistment of more and more masses of raw materials and fuel in the national economy has the consequence in a number of cases of reducing the quality of the mineral and raw material resources that were being used. Many of the deposits that were being worked began to be used up and the mining and geological conditions for operation deteriorated, which was brought about partially by the redislocation of the extraction industry into the uninhabited eastern and northern regions with their difficult accessibility and their severe weather conditions.

High growth rates of the economic potential were provided by large-scale capital construction. The number of construction sites increased, which created even more difficulties in providing them with labor force, materials and equipment, entailed a prolongation of the time period for construction, and slowed up the startup and assimilation of production capacities. The delay of the effect which is inevitable in the investment process with the expansion of capital construction had an unfavorable influence on the capital-intensiveness of public production. Moreover, the extensive construction program worsened the shortage of labor resources and led, in the final analysis, to understaffing of enterprises, a reduction of the coefficient of shift work and a drop in the output-capital ratio. Most of the domestic and imported equipment was sent to new enterprises, which impeded renovation in existing industries.

In 1980 36 percent of the fixed production capital in domestic industry was new and had been introduced in 1976-1980. Most of this was fixed capital at new enterprises. Thus the startup of new capital in the past 10-15 years exceeded the amount withdrawn because of delapidation and obsolescence 4-5-fold. In 1980 the fixed capital that was introduced amounted to 8.1 percent of the overall value (at the end of the year) and only 1.4 percent was removed. Even for machines and equipment the coefficient of startup in 1980 amounted to 9.8 percent, and the withdrawals of equipment--only 2.5 percent.* In addition to stepping up processes of intensification, we thus retained elements of extensive growth, particularly quantitative accumulation of capital.

In branches of the national economy there is rapid spreading of progressive technical equipment and technology. In industry alone, as a result of applying new technical equipment, in 1980 there was a conventional release of 555,000 workers, and the annual economic effect amounted to 4.78 billion rubles, that is, it increased more than 1.8-fold as compared to 1970. But with respect to the overall mass of profit, it amounted to only 6.5 percent.** The growth of net income in the national economy, consequently, is little related to technical progress and is mainly conditioned by expansion of production, advancements in the assortment and products lists, changes in prices and so forth.

With the growth of production capacities there is a regular increase in the demand not only for labor, but also for material resources. It was previously covered by the increased output of the corresponding means of production as a result of expanding one raw material or material producing branch or another.

*"Narodnoye khozyaystvo SSSR v 1980 g" [The USSR National Economy in 1980], Moscow, "Statistika", 1981, pp 146-147.
**"Narodnoye khozyaystvo SSSR v 1980 g," Moscow, "Statistika", pp 100, 503.

As a result, the structure of the economy gradually changed in the direction of the material- and capital-intensive type. Thus in USSR industry from 1965 through 1980 the proportion of energy engineering increased from 2.9 to 3.0 percent, and the chemical and petrochemical industry--from 4.7 to 7.0 percent. While in 1971-1980 the growth rate of the processing branches exceeded the rates of the extraction branches 1.32-fold, in 1976-1980 the difference decreased to 1.14-fold and there was a tendency toward further reduction.*

Extensive expansion of the raw material base with the enlistment into production of additional masses of material resources creates the illusion that they are unlimited and at the same time leads to a reduction of requirements on their quality. The 26th Party Congress discussed the need to utilize raw materials, fuel and processed materials economically because of the constant increase in their production. It was also noted: "The urgency of these tasks is related to the fact that we are speaking about irreplaceable wealth. We are responsible not only to the present, but also to future generations for its correct and thrifty utilization."

The existing system of planning has not contributed to economizing on material resources in all ways. The dominant indicator of the economic activity of the enterprises, associations and branches is the volume of product sales, which, like the gross output, includes the cost of raw materials, processed materials, energy and batching items and does not stimulate a reduction of the expenditures of public labor. This indicator has not been properly adjusted by the indicator of profit as was envisioned when conducting the economic reform. For it was also possible to achieve the necessary amount of additional output through assortment changes and changes in prices for new and modernized products. Thus the very practice of drawing up production plans, when the point of departure was the previously achieved level of utilization of production resources, did not stimulate economizing on material resources or searching for ways of more efficiently utilizing substantial elements of productive forces.

A basic reason for the slow reduction of the material-intensiveness of products is the nature of the production technologies applied in many branches. The press has repeatedly noted the increased metal-intensiveness of items of domestic machine building and the slow growth of the production of thin profile rolled metal, sheet metal, precision smelting and stamping; shortcomings in the technology of processing metal by cutting, unjustifiably expensive application of poor grades of cement in construction, the utilization of timber instead of plywood and cardboard for manufacturing packaging, and so forth. The reasons for the slow reduction and even stabilization of material-intensiveness in recent years are interconnected. The system of planning and accounting indicators has not stimulated a search for economical new technologies and, conversely, the material-intensive nature of technology has weakened the effectiveness of the normative base and the system of planning.

Conventional calculations show that if the structure of industry remains unchanged and the norms for the expenditure of materials in production do not decrease significantly, within 10-15 years, with the present rates of growth of the processing industry, it will be necessary to use 40-45 percent of all the capital investments in industry for extracting the necessary raw material and fuel.

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*"Narodnoye khozyaystvo RSFSR v 1980 g," /The RSFSR National Economy in 1980/, Moscow, "Statistika", 1981, p 49.

The aforementioned negative circumstances are brought about to a greater or lesser degree by the unfavorable tendency in output-capital ratio that has been observed for the past 10-12 years. It manifested itself at the end of the 1960's and began to progress during the years of the 9th Five-Year Plan. Under the 10th Five-Year Plan, because of the programmed intensification of the economy, one could expect a stabilization of this process. But in 1976-1980 the average annual rate of decline of the output-capital ratio increased as compared to the 9th Five-Year Plan. Apparently, in addition to factors which have been discussed in detail in literature (deterioration of mining and geological conditions for the operation of mineral deposits, the movement of industry to the east, the reduction of the coefficient of shift work, the increased cost of a unit of capacity of new technical equipment, structural changes in industry, and so forth), the output-capital ratio of production is also beginning to be influenced by the slow startup of new production capacities with an advanced technical level, the delay in the development of the progressive branches and the inertia of the structure of production, and the difference between the growth of the production staff and the limited possibilities of enlisting labor resources.

In its economic nature the indicator of the so-called technological productivity of capital is close to the output-capital ratio. It is determined by the ratio between material expenditures (not including amortization) and the value of fixed production capital. This indicator reflects the processing capacity of the latter: the more raw material, energy, fuel and processed materials that are consumed (process) by the fixed capital, the more effectively it functions. Technological productivity, like output-capital ratio, decreased appreciably. According to our calculations, in the national economy of the RSFSR during the 8th Five-Year Plan the average annual rate of its reduction amounted to 0.79 percent, the 9th--2 percent, and during 1976-1980--3-3.3 percent.

The growing capital-intensiveness of production means that a ruble's worth of capital investments produces less and less increase in output. Therefore in order to maintain stable rates of economic growth it is necessary to have more capital expenditures. If this tendency is accompanied by a retardation of the growth of the productivity of public labor, the proportion of net output in the gross social product--the source of expanded reproduction--decreases. This can be compensated for either by increasing the norm of accumulation in the national income to the detriment of the consumption fund (which is unacceptable) or by increasing the return from accumulation. This is why the 26th Party Congress adopted a developed program for efficient utilization of the country's existing production potential on the basis of intensification of production, scientific and technical progress, all-around economy of resources and improved quality of work.

Qualitative Strides in the Economy

Economizing on one resource or another can be understood as bringing additional amounts of it into production with fewer expenditures. In the final analysis, economizing on resources is tantamount to a relative reduction of capital expenditures on expanding production, that is, there is a process of intensification. At the same time production efficiency increases since expenditures increase less rapidly than results do.

Of course effectiveness and intensification are not the same thing, although intensification of production predictably leads to its increased effectiveness. But the formal connection between these economic phenomena does not reveal the entire complexity of their interaction or the difficulties of their realization. Under the 11th and 12th Five-Year Plans, in order to fulfill the party's economic program, it will be necessary to conduct a number of mutually supplementary measures for accelerating scientific and technical progress and improving the balance and proportionality of the development of the branches, to provide for profound structural, branch and territorial improvement, and to achieve improvement of planning in the economic mechanism. The difficulty lies in the fact that these measures must be taken practically at the same time since a delay in one of the areas of the economic policy reduces the efficiency and effectiveness of others.

Under the 11th Five-Year Plan we are implementing the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Improving Planning and Stepping Up the Influence of the Economic Mechanism on Increasing the Efficiency of Production and Improving the Quality of Work," which makes essential changes in the content and policy of planning. In the first place, increasing the role of long-range plans on the basis of a comprehensive program for scientific and technical progress will change the meaning of economic predictions: it will make them active and directed not so much toward describing expected processes as toward searching for more effective variants of development. Therefore it is necessary for predictions and long-term plans drawn up on the basis of them to take into account the latest achievements of technical equipment and technology and progressive methods of producing energy and materials.

In the second place, strengthening the normative base and expanding the group of the most important kinds of products determined in the plan for which output volumes are set in physical terms and in terms of the products list and increasing the role of production costs forces economic workers to devote serious attention to reducing material-intensiveness and decreasing expenditures on raw material, energy, fuel and processed materials. The changeover to the indicator of normative net output will contribute to this. Its application does not stimulate increased material expenditures. But planning just net output without constant and improved accounting and norm setting for labor expenditures can reduce the significance of stimuli for reducing labor-intensiveness, and when such a fund-forming indicator as the volume of output in tons prevails, as has been noted in literature, this can even lead to an increase in material-intensiveness.* The normative base is effective if it is based on progressive indicators of the expenditure of resources, takes expected changes in technology into account and is regularly revised. Otherwise it becomes a legal justification for inefficiency.

In the third place, the introduction of a planned limit on the number of workers, the wage normative per ruble of output, planned economic effect from scientific and technical measures, priority allotment of capital investments for technical re-equipment of production, and other measures will contribute to accelerating technical progress in the national economy. This, in turn, contributes to reducing the proportion of manual labor and utilizing equipment more fully, that is, in the final analysis, to accelerated growth of the productivity of public labor.

*See EKONOMICHEKSYA GAZETA, No 20, 1978, p 15; PLANOVOYE KHOZYAYSTVO, No 8, 1979, p 83.

In the 1980's it will be necessary to provide for essential structural improvements in industry. Above all it is necessary to have balanced development of groups A and B. More rapid growth of group B will make it possible to improve the supply for the population and raise the level of profitability of industry as a whole (in recent years it has dropped). This will exert a positive influence on the stimulating role of wages in increasing labor productivity since increased real incomes of the workers is provided by expansion of retail commodity turnover where the proportion of goods in great demand will increase significantly.

Turning to the problem of structural improvements in other branches of industry, one must keep in mind that processes of an extensive nature in the 1980's will continue to play an appreciable role in economic growth. This is brought about by the high capital-intensiveness of the assimilation of raw material and energy resources of Siberia, the Far East and the European North, the development of the infrastructure of the eastern regions, the creation (in a number of cases, practically from the beginning) of production complexes in the processing branches of industry, the extensive transportation construction, and many other factors.

Priority to Productions in the Stage of Completion

Capital-intensive processes have a negative effect on the indicators of the efficiency of the utilization of public labor. But this negative phenomenon is temporary and is brought about by the specific nature of the initial assimilation of natural resources in new regions. Then comes a stage of increased effect as the territories of the regions of the capacities of newly created enterprises are assimilated. In planning macro-indicators of the national economy these processes should be kept in mind and measures should be taken to neutralize their influence on the efficiency of public production. Therefore it is expedient to accelerate structural improvements in industry in favor of branches and productions that are soon to be completed.

As we know, the rates of development of processing branches and individual industries depends strongly on the degree or depth of processing initial raw material into final products. The process of oil refining, say, should develop at more rapid rates than petroleum extraction; the utilization of products from petroleum processing in chemical production, in turn, should outstrip the previous stage; the outcome of technical equipment for the petrochemical industry should outpace the growth of the consumer branches of these machines, and so forth.

In each complex of branches of industry one can single out branches and industries that produce raw material or deliver fuel and energy to other branches and industries of the complex. The total expenditures of public labor accumulate along the chain. The capital-intensiveness is usually high in the first stages of production: in the extraction of raw material and fuel and the production of energy. In subsequent stages, in addition to capital expenditures, there are greater current material and labor expenditures.

With the colossal production apparatus the significance of economizing on embodied labor (fuel, raw material, energy, fixed capital and so forth) has increased immeasurably and has an ever greater effect on the final national economic indicators. According to our calculations, losses in the national economy just because of a 1.5-2-fold decrease in the output-capital ratio nullify the savings on live labor. In other words, the influence of utilization of embodied labor on the national income and the accumulation norm necessary for normal reproduction is becoming increasingly appreciable. And it is not only a matter of the fact that in the total production resources an ever increasing role is being played by labor that is embodied in means of production; increased labor productivity will depend ever more strongly on the level of utilization of fixed production capital and on the technical equipment and technologies that are applied.

Branches of industry can be divided into three groups: the raw material and fuel and energy complex which includes branches of the processing industry and electrical energy engineering; material producing branches, which deliver raw materials for subsequent processing (ferrous and nonferrous metallurgy, the chemical and petrochemical industry, the wood processing and pulp and paper industry, the construction materials industry and so forth); and the complex of branches for producing products which are mainly for final consumption (machine building, light industry and the food industry). Of course the division of the branches into these groups is arbitrary, and each of them delivers both raw and processed material for other branches as well as final products. But all three complexes as a whole can be envisioned as a pyramid whose levels are distinguished by the degree and depth of processing of the initial material.

The dynamics of the proportions of these groups in the overall industrial structure during the past 8-10 years shows the gradual changes in favor of the second and third. But these changes are taking place slowly. Thus in RSFSR industry during the years of the 10th Five-Year Plan the proportion of capital investments in the first complex decreased from 29.3 to 28.6 percent as compared to the 9th Five-Year Plan, in the second--from 31.6 to 31.5 percent, and in the third they increased from 35.2 to 36.7 percent. Progressive changes are impeded by numerous opposing factors. Among them are the limited possibilities of changing technologies for producing raw material in the material producing branches, the shortcominings in the development of machine building and branches of group B, and so forth.

The possibilities of structural improvements depend largely on scientific and technical progress, for investments in one branch or another produce an effect and accelerate its growth only if there are changes in the technical basis of production. Then even with increased investments the development will be of an intensive nature. V. I. Lenin pointed out this peculiarity of the production process in the work "The Agrarian Question and 'Critics' of Marx." Yet technical progress cannot proceed uniformly in all branches; there must be concentration of technical equipment and the efforts of science in those sections of the economy where one can obtain a maximum advantage in a short period of time. These sections are processes of processing raw material and fuel, and also labor-intensive processes of production with a large proportion of manual labor (transportation, loading and unloading operations, warehousing and auxiliary

operations in the majority of branches of industry). A most important direction for scientific and technical progress in the 1980's should thus be the introduction of resource- and labor-saving production technologies.

We are speaking, for example, about thorough processing of petroleum, where it is technically possible to reduce by half the proportion of fuel oil in the output of petroleum products (which is tantamount to obtaining several tens of millions of additional tons of gasoline without expanding petroleum extraction); about the change in the technology for processing timber with increased output of the final products (paper, cardboard and veneer) and the utilization of wastes from lumber milling; about the expansion of the assortment of rolled metal, especially of light-weight profile; about forced development of converter and electric steel smelting productions as the most productive and efficient as compared to Marten furnace production; about the introduction of economical sets of energy equipment with high unit capacity; about further development of the chemical industry for alternatives to developing the production of materials that are in short supply; about technical improvement of processes of processing, preserving, salvaging, storing and shipping agricultural raw material, and so forth. A change in the technology for processing materials in combination with fuller extraction of minerals from the earth will make it possible to economize on capital investments in the expansion of the raw material base, including prospecting work and preparation of stockpiles.

In order to carry out the aforementioned tasks it is necessary to conduct at more rapid rates technical re-equipment of industries that produce final products and those branches where it is possible to economize considerably on material resources. Calculations show that an increase in the proportion of branches of the third complex in the general industrial structure of 2.2-2.5 percent (that is, to develop them somewhat more rapidly than in the 1970's) will make it possible to halt the reduction of the output-capital ratio in industry as a whole.

One cannot achieve an essential improvement in the proportionality and balance of the economy slowly, since economic processes are distinguished by inertia. In the 1980's, in keeping with the decisions of the 26th Party Congress, it will be necessary to conduct a number of measures related both to structural changes in industry and to increasing the proportion of investments used for updating fixed production capital. The preparation of a scientific and technical stockpile of principally new kinds of technical equipment and technology will provide for more rapid rates of growth of the productivity of public labor in the future.



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LENIN'S OPPOSITION TO BUREAUCRATIC MANAGEMENT METHODS DISCUSSED

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 16-36

/Article by G. Kh. Popov, doctor of economic sciences, professor, Moscow State University imeni M. V. Lomonosov: "V. I. Lenin on the Struggle Against Bureaucratism"/

/Text/ It was pointed out in the Accountability Report of the CPSU Central Committee to the 25th Party Congress: "The Leninist style is a creative style, one which is free of subjectivism and imbued with a scientific approach to all social processes. It presupposes high demandingness on oneself and others, does not allow self-satisfaction, and stands in contradiction to any manifestations of bureaucratism and formalism."

Irreconcilability to to bureaucratism is one of the radical features of the Leninist style of leadership.

The Need to Fight Against Bureaucratism

V. I. Lenin developed such a broad group of problems of scientific administration that we can legitimately call this the Leninist science of administration. V. I. Lenin investigated problems of the structure and functioning of administration, economic and other methods of control, personnel administration and the technology of administration. And it is quite logical that V. I. Lenin organically augmented the solutions to problems of methods of administration with an analysis of how administration should not be carried out. The complex of all that should not be done in administration, which is a disease of administration, against which one should fight, V. I. Lenin defined by the capacious concept of "bureaucratism."

Improvement of administration, according to V. I. Lenin, includes two organically interconnected aspects--the introduction of what is new and more progressive, on the one hand, and the struggle against what is incorrect, harmful and erroneous, on the other. Unfortunately, sometimes even today improvement of administration amounts only to the problem of introducing the best, and we do not adequately investigate that which is poor and harmful, or ways and methods of eliminating that which is poor.

Bureaucratic perversions are also harmful for a bourgeois state, since its effectiveness as a machine for oppressing the workers decreases. But there bureaucratism is a natural continuation of the very essence of the bourgeois state.

Under the conditions of the most advanced social structure the most progressive state power emerges. "There is no class which can overthrow us: the majority of the proletariat and the impoverished peasants are behind us. Nothing can defeat us except our own mistakes."* And the mistakes of bureaucratism, as V. I. Lenin emphasized, are the most dangerous.

For a socialist state bureaucratism is a malignant tumor: ". . . the whole matter of administration assumes an imaginary, illusory character" (Vol 54, p 101). Bureaucratism is alien to the essence of the socialist state, all of whose power relies on the masses, their conscious support and their activity. It separates socialist administration from its base--the workers, it prevents the workers from assuming the role of owners of the means of production, and it undermines the very essential foundations of the socialist system.

V. I. Lenin emphasized: "Our worst internal enemy is the bureaucrat, the communist who holds a responsible (or else not a responsible) soviet position and who enjoys universal respect as a conscientious person. He lies a little bit, but he doesn't drink alcohol. He has been taught to fight against red tape, but he is unable to fight against it; it protects him. We must purge ourselves of such enemies . . . there can be no wavering on this matter" (Vol 45, p 15).

When one reads Lenin's opinions of bureaucratism one is initially struck by how exceptionally harsh they are--even with what would seem to be fairly insignificant matters. But when one thinks about it one begins to understand that the leader of the first proletarian state could not approach in any other way all that which even remotely recalled the past, the antipopular state of the exploiters. V. I. Lenin knew well that despotic, bureaucratic state that was the tsarist empire, where power, not only in essence, but also in form, right down to the smallest detail, was absolutely uncontrolled, and therefore there was inevitably a demeaning command, both over the people and over everyone on the lower rungs of the ladder of the service and the nobility. Lenin was educated in the great antibureaucratic tradition of Russian literature, on Gogol's "Overcoat" and Nekrasov's "Parade Approach." And Lenin's hatred for bureaucratism was nourished not only by the principled position of the ideologist and leader of the proletariat, but also by the best heritage of Russian democratism. Hence the mercilessness of Lenin's opinions of bureaucratism: "Here the guilt of the Gosbank trade division is obvious: they sat around yawning; fell asleep; and waited, like real bureaucratic scum, for the orders from 'the supervisors'" (Vol 54, p 167).

The bibliographical index shows that in his works V. I. Lenin touched upon the problem of bureaucratism more than 300 times in its most varied aspects, and more than 200 times in works written after 1920.

*Lenin, V. I., "Poln. sobr. soch." [Collected Works], Vol 42, p 249. Henceforth all references to this edition are given directly in the text.

Forms of Bureaucratism and Its Causes

Where does V. I. Lenin see bureaucratism and how does he understand it? Lenin's interpretation of this phenomenon developed, expanded and became more and more capacious. Initially, during the first years after the revolution, he interpreted bureaucratism mainly as red tape, inefficiency, negligence, in a word, the shortcomings in the work style of one worker or another. "Of course, the right 'to approve' or 'not to approve' has always been given to the official by the officials. If one understands this right correctly . . . but if it is interpreted in a bureaucratic way, then 'approval' means petty tyranny, red tape, a game of inspecting commissions, in a word, purely bureaucratic murder of the living cause" (Vol 42, p 344).

He continues to constantly unmask this kind of bureaucratism in the future. "The fog of meaningless and comical trivia . . . and what is serious is not separated. What is serious is drowned in bureaucratic garbage" (Vol 52, p 115). He is against a number of organization measures "which with our vile customs (with pretentions to 'true communism') unnoticeably deteriorate into bureaucratic obtuseness" (Vol 54, p 167).

As the state apparatus accumulated work experience V. I. Lenin's attention was increasingly drawn to that group of manifestations of bureaucratism which consists in shortcomings not of individuals, but of institutions, administrative agencies and the apparatus as a whole. V. I. Lenin writes that "Our central apparatus has become so complicated in three and a half years that it has managed to acquire a certain harmful indirectness." And further: ". . . the evil of bureaucratism, naturally, is concentrated in the center; Moscow cannot but be the worst city in this respect and in general the worst 'place' in the republic" (Vol 43, p 234).

"The announcement and report of the head engineer of Volkhovstroy, comrade Grafitio (25 August) discloses both a crime (red tape) and a number of mistakes of the VSNKh or Petrosovdep or the STO, or all of these institutions together" (Vol 53, p 156). In a letter to the chief of the Central Statitstical Administration, comrade Popov, V. I. Lenin writes: "I already had information about this 'Economic Life' for the first quarter of 1921! The Central Statistical Administration, which is later than a private group of writers, is an example of a bureaucratic institution" (Vol 53, p 122).

His interpretation of bureaucratism was expanded even more during the years of the NEP.

Along with the development of economic construction and the implementation of the new economic policy, Lenin began to relate poor management to bureaucratism. He demanded that the courts devote more attention to judicial prosecution of bureaucratism, red tape and poor management, and include poor management in the overall group of bureaucratic perversions.

In a letter to A. L. Sheynman, Lenin calls the Gosbank a bureaucratic institution precisely because it does not efficiently solve economic problems: "Your words that the Gosbank is now a 'mighty apparatus' (22 February) made me laugh.

Confidentially: it is the height of childishness, the height of communist-official childishness. This 'mighty apparatus' means moving such remarkably 'real values' as soviet rubles from one state pocket into another . . . current accounts in gold rubles (and even in false currency and not in real currency) 2.8-7.9-10.3 million rubles (as of 16 December, 16 January and 1 February). Ha ha! How many of them? Ninety-ninety-eight percent of our fiscal trusts! That is, that same paper currency of those same bureaucrats. The Gosbank is now a game in bureaucratic moving of paper. There is the truth for you, if you want to know, not sweet official communist lies (which always nourish you as an official), but the truth. And if you do not wish to look with open eyes through the communist lies to the truth, then you are a man who has died before his time in the slime of fiscal nonsense. All this is an unpleasant truth but it is the truth . . . please do not be angry about my frankness" (Vol 54, pp 188-189).

Economic bureaucratism is the most dangerous. "The greatest danger is to bureaucratize the matter of the plan of the state economy. This danger is great" (Vol 52, p 76).

Singling out three forms of manifestations of bureaucratism--in the style of work of individuals, in the activity of administrative agencies, and especially in management--enabled V. I. Lenin to provide a developed analysis of its causes.

What gives rise to bureaucratism in socialist administration?

First of all, it is the heritage of the past. V. I. Lenin wrote: "It was necessary to enlist elements that had been nourished on bourgeois views since there were no others" (Vol 42, p 32). These elements brought to the soviet apparatus their customary bureaucratic devices and methods. Moreover, frequently they deliberately increased bureaucratism, and V. I. Lenin notes the "abuses that attached to the communists the old bureaucrats, landowners, bourgeoisie and other scum" (Vol 43, p 234).

A certain role was also played by the legacy of the past which V. I. Lenin called Oblomovitis. The age of serfdom, of forced labor, literally with a whip, instilled in the people a passivity which was encouraged by the tsar, his bureaucrats and the clergymen. This general passivity could not but give rise to passivity in the area of economic enterprise, and it led to a situation where "the Russian person was perhaps the worst person in terms of organizational capabilities. This is our weakest point" (Vol 42, p 35).

Among the causes that give rise to bureaucratism, Lenin attached great significance to the inadequate cultural basis of the mass of the population. He wrote: "Soviet laws are very good because they give everyone the opportunity to fight against bureaucratism and red tape, an opportunity which is not given to the workers or peasants in any capitalist state. But who takes advantage of this opportunity? Almost nobody! And not only the peasants, but an immense proportion of the communists are not able to take advantage of soviet laws for fighting against red tape, bureaucratism or such a truly Russian phenomenon as bribery" (Vol 44, p 171). And further: "We need a culture which teaches us to fight against red tape and bribes" (Vol 44, p 172).

V. I. Lenin saw the group of causes of bureaucratism in the shortcomings of the administrative apparatus. He points out eyewashing and the desire to look at a situation through rose-colored glasses: "We should not be seduced by lies. This is harmful. This is the main source of our bureaucratism" (Vol 45, p 46). Bureaucratism also arises in places where the masses are enlisted in a cause which they do not understand and in which they cannot believe. Improperly appointed managers is also a source of bureaucratism.

But V. I. Lenin saw the main and decisive causes of bureaucratism in the economic area.

V. I. Lenin's polemic with the Menshevik Sukhanov in one of his last works, "On Our Revolution," is widely known. Sukhanov denied the prospects of socialist transformations in Russia since Soviet power does not have the necessary economic base. V. I. Lenin agreed with his evaluation of the economic base. Yes, we are backwards. But because of historic conditions we could not take over power. And he wrote: ". . . why can we not begin from the beginning and win through revolution the prerequisites for this particular level, and then, on the basis of worker and peasant power and the Soviet system, move forward and catch up with other nations . . . where have you read that such changes in the usual historic order are inadmissible or impossible?" (Vol 45, p 381).

V. I. Lenin developed a structured study of the role of power and the system of administration as implements for constructing the corresponding economic base. But V. I. Lenin also saw clearly the dangers and difficulties of this path. And one of the main ones is the danger of bureaucratism for power which is not founded from the first on the appropriate economic base. Economic dispersion and an inadequate level of real collectivization force authority and administration to compensate for the inadequacy of economic ties by levers of state and administrative influence, administratively "sewing together" those parts of the economy that have not actually grown together. And here arises the main objective base of bureaucratism. "The more separated the peasantry, the more inevitable bureaucratism at the center" (Vol 43, p 49). "Bureaucratism, . . . as a superstructure over dispersion and pressure on the small producer . . ." (Vol 43, pp 230-231).

Bureaucratism in our state system ". . . is related to that petty bourgeois element and its dispersion" (Vol 43, p 32). V. I. Lenin wrote: ". . . we have already recognized in our program that we are experiencing a rebirth of bureaucratism, that we actually do not have the economic foundations for a socialist society yet" (Vol 42, p 32). Lenin criticized the suggestion to create a new department precisely because it "will not be joined together economically" (Vol 42, p 165). "We have a different economic root of democratism" separation and dispersion of the small producer, . . . the lack of circulation between farming and industry, the lack of a connection and interaction between them . . ." (Vol 43, p 230).

The assumption of power creates the danger of libertarianism, the danger of the belief in the unlimited possibilities of power, in the force of the order. This libertarian bureaucratism is what V. I. Lenin called communist arrogance--"It means that a person in the communist party and who has not yet been purged from it imagines that he can carry out all his tasks by communist decrees" (Vol 44, p 172).

Thus V. I. Lenin called for active utilization of the force of power and the possibilities of administration for socialist construction and at the same time he warned of the danger of bureaucratic perversion of these possibilities. "In a state of civil war we had to turn to measures of wartime. But it would be the greatest mistake if we drew from this the conclusion that these are the only possible measures and attitudes. This would mean, probably, the downfall of Soviet power and of the dictatorship of the proletariat" (Vol 43, p 30).

Methods of Fighting Against Bureaucratism

The development of the causes of bureaucratism enabled V. I. Lenin to pose the problem of fighting against them correctly, from both a theoretical and a practical standpoint.

V. I. Lenin distinguishes between the extremes of bureaucratism, its abnormality, remnants and ugliness (abscesses), on the one hand, and bureaucratism as an inevitable chronic illness of the administrative apparatus, on the other. To the statement of M. F. Sokolov: "The independence of the masses is possible only when we wipe from the face of the earth that abscess which is called bureaucratic main boards and centers"--V. I. Lenin answered as follows: "Even though I have not visited the local areas, I know this bureaucratism and all of its harm. Your mistake is to think that it is possible as an 'abscess' to remove it immediately, to 'wipe it from the face of the earth.' This is a mistake. One can banish the tsar--banish the landowners--and banish the capitalist. We have done this. But one cannot 'banish' bureaucratism in a peasant country, one cannot 'wipe it from the face of the earth.' One can only slowly, through persistent labor, reduce it. To 'cast out' the 'bureaucratic abscess' as you have put it in another place--is in correct in the very statement of the problem. This is a misunderstanding of the problem. To 'cast out' an abscess of this kind is impossible. It is only possible to treat it. Surgery is absurd in this case, it is impossible; only slow treatment--anything else is charlatanism or naivete . . . 'main boards' 'cast out'? Nonsense. What will you replace them with? You do not know. We should not cast them out, but purify them, treat them, treat them and purify them tens and hundreds of times. And not lose heart" (Vol 52, pp 193-194).

In a speech at the 8th All-Russian Congress of Soviets V. I. Lenin said: "I understand the seriousness of bureaucratism, but we have not included its destruction in the party program. This is not an issue for the Congress--this is an issue for the entire age . . ." (Vol 42, p 165). And further: "The fight against such an evil can be successful only with immense persistent throughout many years. Therefore we should not despair, but begin to work again and again, renew what has failed, and try various methods of achieving the goal" (Vol 43, p 281).

At the same time "we should not defend the extremes of bureaucratism, it is necessary to rectify them. The fight against bureaucratism means long and difficult work. It is possible and necessary to correct the extremes immediately" (Vol 42, p 244). "It is necessary to find these extremes of bureaucratism and rectify them, without interchanging bad and good or black and white" (Vol 42, p 248).

If we systematize Lenin's instructions we note that he is speaking about two groups of measures for fighting against bureaucratism:

stopping it and punishing it (the direct fight against bureaucratism);

improvement of administration and development of the economy, development of the cultural revolution, and training and education (both of the masses and of their leaders).

V. I. Lenin demanded the strictest measures in fighting against the extremes of bureaucratism: "You are obligated to receive grain from the peasants day and night. If it is confirmed that you have not received grain after 4 o'clock and have made the peasants wait until morning, you will be shot" (Vol 50, p 238). "For Christ's sake, put somebody in jail for red tape! Without this there will be no point to it" (Vol 54, p 161). He wrote: ". . . is our weak people's commissariat of justice beginning to learn to raise the question of red tape and deal with it openly?" (Vol 54, p 88). "Is our people's commissariat of justice not sleeping? Here we need a number of examples using the strictest punishment" (Vol 54, p 160). "Where do we find reprimands from the people's courts for the fact that the worker or peasant has been forced to come to an institution 4 or 5 times and finally obtain something that is formally correct but is essentially an insult?" (Vol 43, p 328).

Against whom should these measures be directed? Primarily against obvious and hidden enemies. "I very much hope that we shall drive out from our party from 100,000 to 200,000 communists who have latched on to the party and who are not only unable to fight against red tape and bribery, but also are an impediment to fighting against them" (Vol 44, p 171). "After we began to purge the party and said to ourselves: 'Self-seeking individuals who have attached themselves to our party are thieves--down with them,' things became better for us. We have rid ourselves of 100,000, and this is excellent, but this is only the beginning" (Vol 45, p 15).

V. I. Lenin singles out another group which must be uncompromisingly punished for bureaucratism--this is those who are able to work but do not want to learn to do it. Therefore communists and "those tens of thousands who are now only creating commissions and doing no practical work and are unable to do it should be subjected to the same fate, that is, purging" (Vol 45, p 15). V. I. Lenin wrote that "in the future we shall punish for red tape those righteous, but helpless blockheads . . . for we, the RSFSR, need not righteousness, but the ability to do the job" (Vol 54, p 88).

To the statement of D. I. Kurskiy that it is very difficult to separate red tape as the actions of individuals from red tape as the consequence of the poor arrangement of our appartus, its organizational defects, V. I. Lenin answered: "With such an approach, of course, nothing will come of the fight against red tape. It is necessary to learn to call up and punish with exemplary strictness those parties who are guilty of these 'organizational defects' and nobody else" (Vol 54, p 119). In a note to A. D. Tsyurupa, V. I. Lenin wrote: "I am sending you an example of our foul red tape and dullmindedness! And these are our best people, Pyatakov, Morozov and others! They would destroy the cause were it not for the whip" (Vol 54, p 187).

V. I. Lenin thought that measures of retribution for bureaucratism depend largely on the repetition of the crimes. "Would you please give Platonov a written reprimand with a warning that if he does something like this again you will not defend him anymore and he will be given a very severe punishment, right down to deprivation of the right to continue to hold Soviet positions for several years. Be so kind as to send me a copy of your letter to Platonov' (Vol 52, p 292).

"Have we thought out the forms and methods of holding members of boards of trusts responsible for incorrect reporting and for operating at a loss?" (Vol 54, p 160). "Deputies should try to apply more frequently than before administrative punishment by their own authority (accelerate the draft of the law on this subject prepared by Comrade Tsyurupa) for bureaucratism, red tape, poor management, shoddy work and so forth. In cases of more significant offenses it is necessary to fire them, take them to court and arrange through the people's commissariat of justice processes that make obvious examples of them" (Vol 45, p 157).

V. I. Lenin raised the question of the collective responsibility of the administravie agency for bureaucratism. "The scientific and technical division of the VSNKh seems to have gone to sleep on the job. It is necessary either to wake them up or to take real steps to drive out these scholarly good-for-nothings . . ." (Vol 53, p 163). In another document Lenin recommends: "And Il'in . . . and the entire factory committee of this plant and the entire trade-union board (correspondingly) and the entire communist cell of this plant or of other plants like this we declare guilty of red tape, clumsiness, and tolerance of bureaucratism and we are giving them a severe and public reprimand with the warning that the punishment will be this light only the first time and in the future we shall mercilessly throw this trade union and communist scum in jail (the court might express it less vehemently)" (Vol 54, pp 88-89).

At the same time, while insisting on the severeness of the measures, V. I. Lenin taught us not to understand the problem of the struggle in a primitive, elementary way: "We must note a necessary change in the basic posing of the problem of the fight against speculation. We must support 'correct' trade, that does not evade state control, and it is advantageous for us to develop it. But speculation cannot be distinguished from 'correct' trade if we understand speculation in the political and economic sense" (Vol 43, p 236). Once it has been permitted to run a business, when it has been permitted to engage in trade, it is ridiculous to close one's eyes to the fact that freedom of trade is speculation and it is necessary to fight in a new situation against theft and evasion of state control, supervision and accounting, but "without crowding out business or trade work" (Vol 44, p 401).

Regardless of how important punitive measures for bureaucratism may be, Il'ich wrote: "If we purged our party hundreds of thousands of times it would be useful but it would still be insignificant compared to what we have to do"-- (Vol 44, p 171), punishments alone will not rectify the matter. Therefore V. I. Lenin considered the main task to be a second complex of measures for fighting against bureaucratism: improvement of the Soviet system. If the first group of measures could be called surgical treatment, the second group is a kind of prevention, a tempering of the administrative organism, and its development in a direction which reduces the potential base for bureaucratism. In this sense

all Lenin's teachings about the paths to the construction of socialism, about the cultural revolution, about cooperation and industrialization, about the new economic policy, about the system of administration and about the party as the leading force in the construction of socialism are also teachings about ways of fighting against bureaucratism. But Lenin associated some of the aforementioned issues especially closely with the fight against bureaucratism.

First of all--improvement in the selection of personnel. "A lack of confidence in decrees, institutions, 'reorganizations' and officials, especially communists; the struggle against the slime of bureaucratism and red tape by inspecting people and inspecting their actual work . . ." (Vol 44, p 370). "Either search for and slowly find (testing and verifying hundreds of times) people who are capable on behalf of the Gosbank of arranging trade, inspecting trade, encouraging efficient merchants . . . or the entire Gosbank and all its work amounts to nothing, worse than nothing, self-aggrandizement with more bureaucratic rattling" (Vol 54, p 189).

Intelligence is of immense significance, or, more broadly, culture, including political education: ". . . if you are going to deal with the people and enlighten them politically, your experience will show that there will be no bribes among the politically enlightened people, and we encounter them at every step" (Vol 44, p 172). Those citizens who are politically more enlightened than others, "can not only fight against any kind of red tape--this is widespread among us--but show with actions how to conquer this evil" (Vol 44, p 173).

V. I. Lenin attached exceptional significance to the development of the economic mechanism of administration. Among the economic instruments he assigns the first position to economically correct, stimulating evaluation of the results of the operation of state enterprises and institutions. Lenin demanded that they "close down any trade operations that are actually bureaucratic-communist trade operations and factory 'Potemkin villages'" (Vol 54, p 189). "It is extremely important to observe the operation of state trusts in order to separate the work that is arranged fairly well from the majority of the work that is arranged terribly, and to steadily close down the latter . . ." (Vol 45, p 154). "If we do not need a plant--close it. Close all plants that are not absolutely necessary. Of those that are absolutely necessary, give preference to the shock work plants" (Vol 42, p 301). V. I. Lenin demanded: ". . . driving out virtuous communists from the boards, closing somnolent (and strictly communist) enterprises, closing them, singling one out of 100 suitable ones. Either the NKFin will find a way of changing over to this kind of work or the NKF will amount to zero" (Vol 54, p 180).

Lenin's demand to close plants logically ensues from the fact that the plants were given all the necessary rights: ". . . success, in turn, requires unconditional, in the modern Russian situation, concentration of all power in the hands of the plant administrations. These administrations, comprised according to the general rule of unified management, must independently be in charge of the establishment of the amounts of wages and the distribution of paper money, shares, work clothing and all other kinds of supplies, with maximum freedom of maneuvering, with the strictest inspection of the actual successes in increasing production and reducing losses, increasing profitability, with a serious selection of the most outstanding and skillful administrators, and so forth" (Vol 44, p 345).

A correct evaluation of a plant should be augmented by a correct evaluation of the workers, encouragement and punishment of the collective--encouragement and punishment of each worker. In the works of V. I. Lenin wages are directly associated with the problem of fighting against bureaucratism. "All people's commissariata plus the Moscow and Petrograd soviets must within a week submit a draft of a decree for changing over employees (all who are involved in the economy) to bonuses from circulation and from profit, with harsh punishment for losses, weakness and inattentiveness, and with the obligation to fill trade orders in 3-6 hours under the threat of imprisonment for no less than 5 years" (Vol 44, p 425). Payment in proportion to the effect that is obtained--this is V. I. Lenin's consistent line. "We can also learn to change our bureaucrats over to bonuses: from a transaction, a certain percentage (proportion of a percentage) for you, and for failure to complete the transaction--prison" (Vol 44, p 429).

V. I. Lenin thus developed an elaborate conception of the struggle against bureaucratism: both against its extremes and against its basic manifestations.

Motive Forces in the Fight Against Bureaucratism

When speaking about the motive forces in the fight against bureaucratism V. I. Lenin attached special significance to mobilization of the forces of the party itself, the activity of each communist, and the purging of the bearers of the bureaucratic style that had attached themselves to the party. Communists should be the initiators of the struggle against bureaucratism in their own institutions. "It is necessary to observe--if only in a very few institutions at first--the movement of communists within the Soviet institutions, striving to make sure that communists occupy exclusively those positions (both at the very top and at the very bottom of the hierarchical ladder) which enable them to actually check on the course of work, to actually fight against bureaucratism and red tape, and to efficiently achieve an immediate improvement in the situation and improve the destiny of those unfortunate citizens who have been forced to deal with our worthless Soviet apparatus. Special attention should be devoted to communists who hold positions at the bottom of the hierarchical ladder for they are frequently more important in work than those who are at the top" (Vol 45, p 155).

The forces of the party alone are inadequate. All workers and peasants must participate directly in the fight against bureaucratism. This is not only a question of the effectiveness of this struggle. The main thing is that without the workers it is generally impossible really to fight against bureaucratism. "Write as many laws as you wish! Why are we not succeeding in this struggle? Because it cannot be propaganda alone, but can be completed only if the masses of people themselves help" (Vol 44, p 171). Against bureaucratism and "against this stupidity and Oblomovitis all nonparty working and peasant masses to a man will go with the leading detachment of the communist party. There can be no deviations regarding this" (Vol 45, p 15). The fight against bureaucratism is one of the important means by which the party can win authority among the masses and bring the masses over to its side.

For this struggle it is necessary to mobilize the forces of the state apparatus itself. V. I. Lenin called upon them to "supervise local practice and control local supervision of the work of the central apparatus and, conversely, thus achieve an elimination of red tape and bureaucratism" (Vol 43, p 271).

In the fight against bureaucratism V. I. Lenin attached exceptional significance to agencies of the TsKK and the worker-peasant inspection teams that are formed on a basis that is independent of state and party apparatus and elected by those same conferences and congresses which elect the head agencies for management of the party and country and act as an instrument for enlisting rank-and-file workers and peasants in the fight against bureaucratism. He wrote about the fact that "members of the TsKK, a certain number of whom are obligated to attend every meeting of the Politburo, must comprise a solid group which, 'without respect to individuals,' must make sure that nobody's authority, no general secretary and none of the other members of the Central Committee can prevent them from making demands, inspecting documents and in general unconditionally obtaining knowledge and achieving the strictest correctness of the matters" (Vol 45, p 387).

V. I. Lenin noted that workers of control agencies "should be highly qualified, especially tested, especially reliable, with a high salary, and completely free of the current, truly unfortunate (if not worse) situation of bureaucrats of Rabkrin" (Vol 45, p 385).

V. I. Lenin organically related his teachings about the motive forces in the struggle against bureaucratism to the development of forms of this struggle. In particular, the interests of enlisting the masses of workers require the use of vocal, open methods. And this is why V. I. Lenin devoted so much attention to judicial forms of the struggle.

V. I. Lenin wrote on 3 September 1921 a special letter to the people's commissar of justice, D. I. Kurskiy, concerning the need to increase the role of the court in fighting against bureaucratism in general and red tape in particular. Two months later he wrote: "I wish to know how the following tasks have been carried out: 1) extending the courts through the central committee so as to provide more severe punishment for red tape; 2) arranging a conference of Moscow people's courts, members of tribunals and so forth in order to develop successful measures of fighting against red tape; 3) absolutely this fall and winter of 1921-1922, placing on the court docket in Moscow 4-6 cases concerning Moscow red tape, having selected cases that are 'clearest' and having made a political cause of each one; 4) finding if only two or three intelligent 'experts' on matters of red tape among communists who are the strictest and liveliest (enlist Sosnovskiy), in order to learn how to deal with red tape; 5) publish a good, intelligent and not bureaucratic letter (circular from the people's commissariat of justice) concerning the fight against red tape" (Vol 41, p 1).

V. I. Lenin drew attention to the need "to chastise the guilty parties in the press as well" (Vol 53, p 165). He suggested "that the press be instructed to make fun of them and humiliate them. For the shame here is precisely that Moscow residents (in Moscow!) have not been able to fight against red tape. And this must be driven out" (Vol 44, p 429).

In order to fight against bureaucratism it is important to learn methods of fighting against it. "Bureaucrats are dodgers, many of the blackguards among them are arch-scoundrels. They are slippery. Have you really fought against them correctly? Have you surrounded the enemy according to all the rules of military art?" (Vol 52, p 194). "After all you are communists, so why have you

not organized traps for these lord bureaucrats and then taken them to court and thrown them in jail for this red tape?" (Vol 43, p 328).

Not only workers, but managers too must learn to fight against bureaucratism: "In essence I am surprised by your letter. Such complaints are commonplace from workers who are not able to fight against red tape . . . why have both of you only 'cried' and not suggested precise changes: leave it up to the SNK (or NKVT, or someone else) to raise something" (Vol 52, pp 206-207). "I cannot but accuse even you of red tape. 'We have been shouting for three years,' 'we have brought this thing to an end, it would seem, almost ten times,' you write. But the fact is that you have not once brought the matter to an end, without the 'it seems.' You know the RSFSR constitution and the rules of the RKP. To the end means to a session of the VTsIK (if not a congress of the soviets). Through the party to the Plenum of the Central Committee. You have never brought the matter to an end. 1) A brief, 'telegraph,' but clear and precise statement to members of the Central Committee--members of the Presidium of the VTsIK; 2) An article in the press; 3) local initiative or that of a neighboring cell of the RKP, a summons, a demand in the Moscow Sovdep--here are three measures that are mandatory in fighting against red tape" (Vol 53, p 217).

Principled intolerance of bureaucratism enabled V. I. Lenin to correctly follow that far from simple and far from always easy line between fighting against bureaucratism for the sake of strengthening socialist administration and that "fight" when, under the guise and flag of attack on bureaucratism, one attacks the socialist system itself: directly or indirectly, clearly or vaguely, willingly or unwillingly. The Leninist analysis of anti-socialist forms of criticism of bureaucratism, directed primarily against the "labor opposition" of that time, is of great methodological significance and is extremely crucial even today. The fight against the evil of bureaucratism, wrote V. I. Lenin, "can and should be included in the policy of the day, but not on the plane of criticism for the sake of criticism" (Vol 42, p 49).

The fight against bureaucratism can be transformed into its own opposition. V. I. Lenin wrote about the unhealthy elements in the opposition which agree to ". . . renounce not only the 'method of appointment,' which has been practiced up to this point primarily, but also all kinds of 'appointment,' that is, in the end, the leading role of the party with respect to the mass of nonparty members" (Vol 42, p 244).

Unmasking anti-socialist critics of bureaucratism, V. I. Lenin taught a steady approach to workers who have ended up by chance in the camp of some kind of critics, since the fundamental class interests of the workers and peasants are on the side of socialism, Soviet power and the party. V. I. Lenin wrote that "It is necessary to distinguish the healthy from the unhealthy in 'opposition'" (Vol 42, p 219). "If we do not make the maximum possible in the democratic sense from those moods which are now being expressed by Kutuzov, we are in for political failure . . . and here I must say that comrades like Kutuzov should be enlisted more closely in this work and promoted to higher positions" (Vol 43, p 54).

V. I. Lenin showed that the main peculiarity of the problem of bureaucratism in socialist administration consists in that socialist administration itself has not only the historical roots of bureaucratism, but also all the conditions for surmounting it; the motive forces for fighting against bureaucratism exist. This is a profoundly dialectical approach. For the roots of bureaucratism in socialist administration are related not only to the essence of this administration, but also to the underdevelopment of this essence. In essence bureaucratism is alien to administration based on public property. Therefore all subjects of socialist administration--the party, the state and the workers--actively and irreconcilably come out against it.

Relying on the Leninist concept of the fight against bureaucratism, the party and state have worked and are working constantly for consistent development of measures directed toward surmounting any manifestations of it.

This work is directed above all toward measures for improving the system of administration of the economy of developed socialism. The CPSU has developed and is consistently implementing a detailed long-term program for improving the administration of the national economy. The decree of the CPSU Central Committee and the USSR Council of Ministers concerning improvement of the economic mechanism (1979), subsequent resolutions and the adoption of the Food Program--all this is directed toward further development in the system of administration of precisely those elements which reduce the objective base for formalism, administrative inefficiency, red tape and other forms of bureaucratism. Of special significance are measures for developing long-term planning and strengthening direct ties in the economy, strengthening economic motivation and responsibility, expanding the rights of the main unit of the economy, and developing brigade forms of labor organization and the Shchekino system of payment for labor.

At the same time, in party and state documents an immense amount of attention is devoted to direct forms of fighting against various manifestations of bureaucratism. In the decrees of the CPSU Central Committee concerning the development of criticism and self-criticism in the Tambov Oblast party organization and the work of the Tbilisi CPSU Gorgom, in the law adopted by the USSR Supreme Soviet concerning national control, in the measures for strengthening responsibility for various kinds of theft and violations of the normal practice of management, and in other party and economic decisions there is a firm adherence to a line toward strengthening responsibility for various kinds of bureaucratic perversions of socialist administration.

Lenin's works even today are an inexhaustible source of ideas both for scientific analysis and for practical activity in the area of fighting against bureaucratism.



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NEED TO CONSOLIDATE VARIOUS METHODOLOGIES MEASURING ECONOMIC EFFICIENCY STRESSED

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 37-43

/Interview with N. Ya. Petrakov, doctor of economic sciences, deputy director of the Central Economics-Mathematics Institute of the USSR Academy of Sciences, by V. Latyshev: "What Is To Be Done About 'Local Logic'"/

/Text/ /Question/ Nikolay Yakovlevich, let us consider a situation which is certainly not imaginary. An inventor has invented a machine for mechanizing an extremely labor-intensive process that is performed by hand practically everywhere. The plant which has introduced it has economized a great deal. The inventor has been given an award for it.

And at another plant somewhere the prototype of this machine has been in operation. If the new machine had been compared to it in terms of the results of its introduction, the economy and, consequently, the remuneration would be appreciably less. But such a comparison is not envisioned by the "Methods of Determining the Economic Effectiveness." The money is counted by the bookkeeping office--what there was and what there is now. How and with what success the same technical problem is being resolved elsewhere are of no interest here.

The imperfect calculation of the economic effect is not immediately noticed here: regardless of how you calculate it, the real income for the state will not change. Even a nonspecialist can immediately see the illogical consequences of this calculation--the determination of the inventor's remuneration. Its amount turns out to be dependent on the place of introduction, that is, on a circumstance which has nothing at all to do either with the creative efforts of the inventor or with his contribution to technical progress.

How do you regard this "local" economic logic?

/Answer/ This is rather economic illogic. In this case the inventor has earned more because of the technical backwardness of the enterprise, but the state has also benefitted: a good machine was introduced in any case. Incidentally, as you know, a worse situation sometimes arises: they use "their own" invention even when they know about a more effective one, but it is "someone else's." In terms of accountability, when various stages of the activity of one and the same enterprise are compared, everything looks wonderful nonetheless: new technical equipment has been introduced and money has been saved. There is nothing to gripe about. The inventors and the workers who help them receive their reward. And in essence it is the same thing as in a classroom when all the B students give the C student a certificate of merit . . . .

Our conversation touches upon a general economic problem of measuring the results of economic activity. How does one determine what is advantageous and what is not? According to technical data one can compare only things that serve one purpose. But on a state scale, when solving the problem of where to invest money and how much, one always has to compare incomparable things--combines and underwear, roads and houses, vegetables and cement . . . only one common measurement is suitable here--the economic one.

With today's normative coefficient of the effectiveness of capital investments being equal to 0.15, each ruble invested in any measure should produce no less thank 15 kopecks in profit, but it certainly does not follow from this that everything that produces a 15 percent profit should be immediately carried out. Let us say that we have a million rubles which are being claimed by a tire plant and a confectionary factory. The tire plant produces a 20 percent profit and needs 700,000, while the confectionary factory produces a 17 percent profit and would like to obtain 500,000. The economically intelligent solution would probably be one whereby the tire workers would be fully satisfied and the confectioners were given the remaining 300,000. Right?

/Question/ But you cannot drink your tea with a tire . . .

/Answer/ And I am not suggesting this. We will receive the maximum possible economic advantage in this situation and with these funds we shall compensate for less efficient work of the confectionary industry, for example, we will modernize the equipment of this branch.

I recall that several years ago I heard a discussion of the distribution of products of one of the plants that produce polyethelene. A machine building association wanted them (for manufacturing domestic components for machines) and so did the wine making industry (to produce artificial corks for bottles). At first it seemed to some that there was nothing to discuss here--just think, corks! And the service life of a component would almost double if the metal were replaced with plastic. But if the dispute were resolved in favor of the machine builders, it would be necessary to cork bottles with real, imported cork. And this would be much more expensive than completely changing that important component in the machine from time to time.

As you can see, when deciding where to invest money it is necessary to compare not only individual machines or plants of the same profile, but also various kinds of production. This pertains directly to the introduction of inventions which have always involved preliminary expenditures.

Such calculations are always made before any innovation is accepted for production. And this fact alone emphasizes the illogicality of evaluating the results in terms of the level of what is usually a randomly selected plant. It turns out that the criteria of evaluation decrease as the idea is transformed into a machine: the application for invention is judged in terms of the world level of development of technical equipment, the same invention at the level of the plan is judged in terms of the union-wide level, and when the "yield is weighed" it is judged in terms of the local, plant level.

/Question/ You may reply to us that this is correct from the standpoint of accounting for the national income. A specific amount of savings is formed at a specific enterprise, and precisely this savings or part of it should go into the budget.

/Answer/ It goes without saying that we are now speaking not of economizing in general, but of economizing from inventions. Let us return to the situation with which we began this discussion. There is some unmechanized operation. The problem can be solved either by obtaining a machine that is already in operation somewhere or by introducing a new and better one. In the former case the savings results from purely organizational measures, and if someone is to be awarded a bonus for it it should be the supplier. In the latter case the economy is greater. We owe the difference to the invention.

The words "economic effect" mean absolutely nothing if we do not indicate the point of calculation, if we do not say to what it is relative. And the advantage of an invention should be determined with relation to a process or mechanism which is considered to be the best today and is being used for the same purposes. Otherwise there would be no point in the invention.

Incorrect calculation of the economic effect leads to a distortion of moral values: mediocre work, I repeat, can be perceived as good. Moreover, conditions are created for abuses that are not envisioned in any code--if someone is responsible for deciding where the invention will be introduced, and the sum of the remuneration, in turn, depends on this.

/Question/ Here is another example of "local logic." If in the former case the inventor has gained an undeserved advantage, here he has lost just as undeservedly. He has created a machine which is most likely less expensive than the existing analog. At first glance the savings and the inventor's remuneration should be very great, but these methods of this approach are inadmissible since another plant which had produced nothing similar before is manufacturing the machine. If a costly prototype had been produced here the situation would be different, but in this situation it should be considered profit from sales. But . . . profit is established with respect to production cost, and if the machine is inexpensive, the profit is not great.

/Answer/ This is the so-called expenditure approach to evaluating economic activity, when one calculates not in terms of the result, but in terms of the volume of "assimilated" capital. With this approach--it has been criticized innumerable times--it becomes advantageous to make something that is disadvantageous to the society--costly and heavy, since in this case the expenditure of funds, both material and monetary, is equated with useful activity. It can turn out that when a plant is constructed 95 percent of the funds can be expended and the corresponding bonus is received, even though the remaining 5 percent of the funds is to go for installing the equipment.

We are now decisively changing over to evaluating in terms of the final result. From this standpoint only one thing is essential--what you have achieved. Therefore a machine with the same productivity as an old one should at first be sold at the same price as the old one, regardless of the production cost. Then no paradox would arise. Just as there would not be one if the effect were calculated in comparison with the best model in the country.

/Question/ There is another conclusion in favor of "local" economy. They say that there are always people for whom economic calculations are unconvincing. Indeed, one sometimes hears that something has been invented, billions have been saved, but where are these billions, whose hands have they crossed? In order to avoid conditions for such conversations, it is better to entrust the calculation of the savings to the bookkeeping office. Without being confused by technical fine points, it will say precisely whether the innovation produced a profit or a loss.

/Answer/ Not a serious conclusion. With a methodologically incorrect calculation--and we have already explained that these exist--it is impossible to obtain a correct picture, regardless of how precise the arithmetic calculation.

Now about the question "where are the billions." If a simple person asks this one can simply show him where they exist. For instance, as a result of an innovation less metal is spent on the same machine. Weigh the old one and then weigh the new one--and everything is clear. But if an executive says something like this, it is necessary to return the question to him. If he does not know where the billions are it means that he has not been concerned about the proper system of accounting and control and about the removal of these funds. So, as we see, not a single conclusion in favor of "local economic logic" remains.

/Question/ It turns out that one must account for two economic effects. One, as is now the case, in the bookkeeping office is the increase in national income, and the other--the inventor's effect--that is obtained by comparing the invention with the best model, and this is used to evaluate the success of the innovation as a whole and pay the remuneration to the inventors. But who is going to do this . . .

/Answer/ This is possible only with centralization both of the calculations and of the payments. Now, when the enterprise that has introduced the innovation pays, this approach only compromises the idea. Who will select the prototype for comparison, who will compare the technical and economic indicators? Who will organize new services in the industry? No, this must be handled by qualified experts at the union-wide level. Something like today's institute of patent expertise, but it must have economic information as well.

There can also be another solution. Much is being said in the press about firms for introducing innovations. Such a firm, when selecting inventions, would evaluate them economically, thus determining the "inventor's effect," and according to this they would immediately pay a remuneration to the inventor. In my opinion, this would be fair.

Another problem would be solved at the same time of its own accord. Now, as we know, the inventor receives his 2 percent of the savings obtained during the course of 5 years after the initial introduction. But practice shows that the predicted effect is reached after about 18 years. Disputes begin about whether the first utilization is false and the author suffers from the sluggishness of industry. But if the inventor is remunerated once for the calculated savings (it can be made more precise later according to the results of the introduction), the very question of the time period of material rights is removed.

Such a system would be advantageous for the state primarily because an intermediate unit would be formed between the inventor and industry. And it would be good for the inventor because he would be remunerated precisely for his creative contribution and would be fully protected from incorrect introduction of the invention, and moreover he would receive no less than under the present policy and would be assured of the fairness of the evaluation of his labor and that he would not be effected by any factors in market competition.

But all this, I repeat, is possible only with centralization both of the selection of the inventions for production and of the payments to the inventors. Judging from today's state of affairs, we are still far from this, not to mention the fact that centralization itself is not an absolute good--in particular, it leads to great local inertia.

/Question/ Well, in what area should we improve the methods of determining the economic effect?

/Answer/ You have in mind the methods for invention? But the problem is broader than this. The country now has about 30 sets of methods for determining effectiveness--of inventions, capital investments, the utilization of natural resources, the application of automated control systems and so forth. They have been drawn up by intelligent specialists, but without coordination among themselves. In one case one point of view has taken the upper hand and in another case, another point of view, while in a third case there has been a compromise. There has not been a unified approach. And what is the difference to the state whether it obtains income from an invention or from an automated control system? We have somehow taken one measure and calculated its effectiveness according to various methods. The results have ranged from a loss to a savings of several tens of thousands of rubles.

It is necessary to have a unified view, a unified approach to determining the effectiveness of all kinds of economic activity. I hope that then we will be relieved of those shortcomings which we have discussed.



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NEW TECHNOLOGIES NEEDED TO PROD STAGNANT MINING INDUSTRY

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 44-52

/Article by V. Zh. Arens, doctor of technical sciences, professor, State Scientific Research Institute of Mineral and Chemical Raw Material, (Lyubertsy): "There Is No Shortage of Raw Material, There Is a Shortage of Technologies"/

> /Text/ The mining branch of heavy industry is very inert--it requires a great deal of capital and material, and the time necessary for developing new, economically acceptable technical decisions also requires that even today we invest a certain amount of effort and resources in order to create new technologies for extracting minerals.

Labor productivity in mining is increasing slowly, and sometimes it even decreases; the production cost and capital-intensiveness of mining are increasing. All this slows up the growth of the production volume. Thus under the 9th Five-Year Plan the mining industry increased the production volume by 26 percent, but under the 10th Five-Year Plan the volume increased by only 10 percent, and the extraction of coal even decreased. Since 1978 there has not been an increase in the production of ferrous metals. What is the reason for this? Perhaps we need less coal and metals? No. The fact is that because of the complication of mining and geological conditions for working the mines, traditional methods cannot provide for the necessary growth of the volumes of extraction or a reduction of labor expenditures.

The Spiral of the Development of Mining

Mining began with simple gathering of minerals along the valleys of rivers and lakes. During the Neolithic Age the primitive people extracted minerals from the depths of the earth, and in the Bronze Age the first mining developments of rocks, salt and copper appeared. In those times long ago people learned to use hacks, spades, fire and water for mining.

By the middle of the 20th century, because of the development of a powerful technical base for extraction branches of industry, it was possible to mechanize the majority of operations in open pit mining. But there were not so many deposits located close to the surface, and the majority of minerals have to be extracted by underground mining, and it is much more difficult to mechanize and automate this.

What principally new events have taken place in mining? Although mining has advanced from the hack and the spade to powerful mechanized complexes, the changes that have taken place are more quantitative than qualitative since that same hack and spade lie at the basis of open-pit and underground technologies for mining, even though they are mechanized.

Does Raw Material Famine Threaten the World?

During the past 20-25 years more raw material has been extracted in the world than during the entire history of mankind. Now the annual volume of mining industry products exceeds 20 billion tons, and the demand for them is increasing. How long (with these or even greater rates of extraction) will the remaining natural resources last mankind? From the multitude of estimates one can single out two opposing ones. A group of researchers included in the Roman club think that even now it is necessary to think about more rapid development of new technical and technological means of extracting and processing raw material since the supplies that have been discovered and are accessible are limited and, with the traditional methods, they will last for 20-100 years. But if one takes into account the average content of chemical elements in the earth in weight or atomic percentages, it turns out that the supplies of raw material are enough for many thousands of years.

Therefore a conclusion is drawn: there is no raw material crisis, there is a crisis of technical equipment and technology for development, and mankind has already surmounted barriers like these.

Ecological Aspects

Experts assert that in the near future open-pit mining work can be developed to a depth of 700-800 meters, and the buckets of excavators will lift more than 500 tons of rock. But the increase in the proportion of open-pit developments is not unlimited, and even now in a number of countries there is a stabilization and even a reduction of its proportion, which is related mainly to the disfigurement of the earth's surface.

With underground mining of minerals no less serious difficulties arise. Thus increased productivity of the mining faces is impeded by the handling capacity of the mines. The fact is that with increased productivity there is an increase in the discharge of harmful gases, which requires more intensive ventillation, but with an increase in the speed of the air there is increased dust pollution. The assimilation of deep mining horizons is accompanied by a higher temperature, sudden discharges, and a deterioration of conditions for the underground work of miners which are difficult in any case. To this list one must add the fact that depression cones are formed around deep deposits that are being worked, and they take the underground water away from agricultural land that is located within 10 kilometers of the mines, and they also disturb the ecological balance of entire regions.

Predictions and Consequences

Traditional (open-pit and underground) methods of working deposits, based on mechanical separation of the minerals from the mass, loading, delivery and

transportation of the ore-bearing mass, require the presence of people at the place of extraction. It is thought that even in the future it will not be possible to automate all operations of underground mining. Thus these methods do not release people from heavy labor since it is necessary to extract and move millions of tons of empty rock and process all of the ore-bearing mass. Moreover, the time has come to assimilate deposits with a low content of mineral components which lie at great depths, and this must be done under difficult mining and geological conditions.

Apparently at a certain level of development as mining a situation arises whereby further improvement of existing production cannot provide for increased labor productivity or reduced cost of extracting minerals.

A new situation has arisen in mining: the public need demands that we work poor and deep deposits with the mandatory condition of protecting the environment, and traditional technology does not enable us to combine the solution to these problems with increased economic effectiveness of production. Mining science in conjunction with the latest achievements of fundamental sciences must take a stride in the technical basis of mining production.

Geotechnology and its Methods

The essence of new methods of extraction consists in transforming solid minerals into a mobile condition (gas, molten mass, solution, hydraulic fluid) by means of thermal, mass transfer, chemical and hydrodynamic processes at the location of the deposit. The active agents are placed into the deposit and the minerals are extracted from the earth through wells. Geotechnology provides scientific substantiation for these methods.

By studying deposits of minerals from a geotechnical standpoint it is possible to formulate the following questions: What mechanisms of physical, chemical or physicochemical processes can provide for changing the aggregate condition of the minerals? Under what conditions can stable mineral associations be changed into a mobile condition?

Thus one of the main hypotheses concerning the formation of salt deposits is related to their genesis with the evaporation of water in the sea lagoon, that is, in order to develop such a deposit it is possible to evaporate salt water. The residual deposits of loose ores, as a rule, are formed as a result of the breakdown and movement of ore by a flow of water. A jet of water from a hydraulic excavator makes it possible to put the ore into a mobile condition. The formation of hydrothermal deposits involves the movement of gases, vapors and solutions. With the help of physical or chemical processes it is possible to create "reverse" processes of extraction.

The principle distinction between geotechnological methods and ordinary ones, which makes it possible to see the prospects for mining in the new technology, consists in their characteristic features:

the extraction of solid minerals is done through wells, and this makes it possible to exercise control from the surface, changing the parameters of the technology (expenditure, pressure, temperature, concentration and so forth);

the implement of labor (instrument for extraction) is the active agent (solvent, heat bearer, oxidizer and so forth), which changes the solid mineral into a liquid condition with the help of various physical, chemical and other processes;

in addition to extraction it is possible to process minerals in the depths of the earth (for instance, underground gasification), that is, the deposit is simultaneously an object of development and a place where a technological process takes place.

Science and Mining Production

Important tasks for the extraction industry--improvement of working conditions for miners, elimination of heavy physical labor, higher technical and economic indicators of production--are also carried out by introducing geotechnological methods into industry. Experience shows that they make it possible to achieve the highest technical and economic indicators. For example, the development of the Yazov and Nemirov sulphur deposits by the method of underground melting made it possible to extract sulphur rapidly, with fewer (regular) capital expenditures and with half the expense of traditional methods. The same thing can be said about underground extraction of salt, the heat of the earth and so forth.

Mass transformation of mining work involves not only the creation of individual models of new technical equipment or technologies, but also their application in quantities that lead to qualitative changes. The scientific foundations of the new methods for extraction have already been laid. But it is still necessary to do extensive research work directed toward solving specific problems of mining production.

Despite the fact that geotechnology is a young science, it is closely related to production and many of its results have already been introduced into industry.

Well hydraulic extraction (SGD) is a method of extracting solid minerals which is based on putting the ore into a mobile condition at the place of the deposit through hydromechanical means and bringing it through a well to the surface in the form of a hydraulic mixture. As compared to traditional methods, the SGD has essential advantages:

the technological process has only one operation and can be completely automated;

the working of the deposits can be carried out without preliminary draining;

there is no limit to the depth of the development;

the extraction equipment is simple;

it is possible to have selective removal of the mineral;

the surface and the soil layer are not significantly disturbed.

The method was first suggested in 1936 for removing loose ores. Today the technology of the SGD has already been approved on an experimental industrial level at the Fosforit production association and is awaiting industrial

introduction for processing above-balance reserves of phosphorite ores, of which there are more than 10 billion tons in the Baltic area alone. The productivity of the extraction equipment is 50-80 tons of ore per hour; and up to 1000 tons are extracted from the well. The calculated economic effect from the introduction of the new technology at a mine with a capacity of 2.5 million tons will be 16 million rubles per year.

For the new technology for extraction for the first time in the world practice of mining various extraction devices that make it possible to effectively control the underground process of extraction were developed and tested: washing out the ore, removing it and bringing it to the surface hydraulically. This method is effective when working buried placer deposits, including underground deposits of many loose ores (bauxites, manganese and sandy clay ores), and also when extracting construction sand under a depth of rock or in the marshes of Western Siberia.

Underground melting. The method of extracting sulphur through wells was suggested as early as the end of the 19th century by the American researcher H. Farasch. "Natural autoclaves" are created in the depth of the earth. A heat bearer (water heated to 160 degrees Centigrade) is forced into the sulphur deposit through the wells, the sulphur is melted, it flows toward the well and with the help of compressed air is raised to the surface through it. It is impossible to use the Farasch method in domestic sulphur deposits which are principally different from North American ones. Only theoretical research and new technological decisions based on it which are related to the development of a new method of extracting sulphur, the utilization of closed water circulation and complete automation have made it possible to develop and introduce underground melting here. The experimental shops at the Yazov (Carpathian area) and Gaurdak (Central Asia) deposits have grown into industrial shops; every third ton of sulphur extracted in the country comes from them today.

The utilization of the technology for underground melting of sulphur has made it possible to bring into production new above-balance sulphur deposits that were inaccessible with traditional methods. The best technical and economic indicators in the branch have been achieved: proportional capital investments and production costs here are half as much, and labor productivity is twice as great as with traditional methods of extraction. The annual economic effect amounts to more than 100 million rubles. Thermal methods are also utilized extensively for increasing the petroleum output from the beds.

Underground dissolution of salts. More than 100 million cubic meters of brines (or more than 23 million tons of solid salt) are now being extracted through wells at 14 brine industries of the Union. By 1985 20 brine industries will be in operation. Their physical indicators as compared to ordinary salt mines are as follows: the proportional capital investments are one-sixth, the time for the construction of the mine one-tenth-one-fifteenth, labor productivity increases 4-fold, and the production cost is one-fourth-one-fifth. Underground dissolution of rock salt is now a completely developed technology. Unfortunately, potassium and magnesium salts are still being extracted by the traditional mining methods since the processing of the brines is still less effective. Research is being done for comprehensive extraction with simultaneous processing of the brines into potash, soda and other products.

Underground leaching (PV) is an extensively utilized technology for extracting copper and other elements. The essence of the technology consists in selective extraction of valuable components of ores and minerals with solutions of acids and alkalines. PV is a filtration process and is based on the chemical reactions of "solid--liquid."

The extraction of metal through wells has made it possible to eliminate the construction of a surface mining complex which includes ventilation, water pumps, transportation structures, facilities for crushing ores and tailings dumps. On the average the capital investments with the utilization of underground leaching are one-half-one-fourth of those for traditional methods of extraction. Earnings in an underground mine amount to 60 percent of the operational expenditures, and in a mine with underground leaching this figure ranges from 4 to 15 percent. Labor productivity, as a rule, increases 3-4-fold, and this is with the working of the poorer deposits. PV technology is now being widely used abroad for extracting copper and other metals. The USSR has begun work for underground leaching of lead and zinc. Work is also being done for underground leaching of ores that contain phosphorous, but serious difficulties have arisen with the processing of the productive solutions. Attempts are being made to obtain prepared fertilizers from the solutions, and the first results promise success. Bacteria can significantly intensify the process of leaching.

Underground gasification, distillation and combustion. Increasing the extraction of coal, shale and bitumin is directly related to the development of geotechnological methods of extraction. The idea of underground gasification of coal was first suggested by D. I. Mendeleyev in 1888. Subsequently V. I. Lenin described this method as "one of the great victories of technology," attaching immense social significance to it. Work like this has been done in our country since 1933. Two stations for underground coal gasification are now in operation; our technology has been purchased by the American firm "Texas Utilities." Many countries of the world, including the United States, Canada, the FRG, Belgium and Czechoslovakia, are working actively in this area. At the same time they are investigating the possibilities of underground distillation of shales and bitumins. The products that are obtained--high caloric gas and liquid hydrocarbons--are quite suitable for organic synthesis. In the future it will be possible to hydrogenize coal or chemically dissolve it in the depths of the earth.

The modern idea of underground gasification as only a method of extracting fuel gas has become outdated since it can also be utilized for obtaining chemical raw material (sulphur, phenol, methanol and so forth). In particular, underground gasification of highly sulphurous coals, obtaining sulphur or sulphuric acid, will make it possible to make use of immense reserves of above-balance coals (for example, in the Moscow lignite region) and will contribute to solving the problem of producing mineral fertilizers.

The idea of the method of underground combustion of sulphur was suggested by the experience in fighting against mine fires. Experiments showed that the sulphuric gas formed during the combustion of sulphur is quite suitable for obtaining concentrated sulphuric acid.

The heat of the earth. We have now begun to utilize natural geothermal forces (for example, the Pauzhetskaya GeoTES in Kamchatka operates on them). The technology consists of drilling deep wells and creating an artifical underground

heat boiler between them using bursts of water. The heat bearer forced into certain wells, passing through a mass of hot rock, is warmed and is returned to the surface through other wells. The heat is utilized and the heat bearer is again returned to the earth. The utilization of this kind of heat is especially effective in mining under the conditions of the eternal frost, and for heating cities, villages and hothouses. In recent years work for extracting heat from the earth has become considerably more active. Thus in 1981 at the Los Alamos laboratory the idea of academician V. A. Obruchev was carried out and in a demonstration installation hot steam is obtained from a depth of 4,000 meters.

Geotechnological methods provide for flowline technology of extraction without people and without machines, so that there need be no people on the working face. They make it possible to create a new type of production which changes the nature of labor: man ceases to fulfill the function of an assistant to the machine and becomes the controller and regulator. These methods have great prospects, but even greater possibilities lie in the geotechnological understanding of the property of minerals and the phenomenon related to them.

Geotechnical methods of extraction constitute one of the principles for intelligent and efficient management on earth. Geotechnology is the mining science of the last decades of the 20th century and the beginning of the 21st century. Efficient and comprehensive assimilation of the earth is a problem which can fully be compared with the problem of conquering space in terms of its significance and difficulty. It is necessary to do a large amount of research work in this area and, of course, there is every reason to expect success.



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OPERATIONAL TRAINING MUST PRECEDE INTRODUCTION OF NEW TECHNOLOGY IN MACHINE-BUILDING INDUSTRY

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 53-65

/Article by A. I. Ulitskiy, candidate of economic sciences, docent of the polytechnical institute, and V. V. Durzin, instructor (Saratov): "Operational Preparation of New Technical Equipment--An Independent Part of Production"/

/Text/ One of the key tasks of the 11th Five-Year Plan, as was noted at the 26th Party Congress, is more complete and efficient utilization of fixed production capital. It is growing at rapid rates, but in many cases we are not receiving the proper return.

The editorial mail received in response to the selection of articles entitled "Metal Processing Equipment: Technical Level and Ability to Compete" (EKO, No 1, 1982) provoked us to turn once again to the problems of the machine tool stocks, which, judging from the responses, is bothering many readers a great deal. In this issue we are including articles which develop and augment the first article with new ideas and suggestions for improvement of the operation of the country's machine tool stocks.

Every machine building enterprise is both a producer and a consumer of new machines. It is necessary for them not only to achieve high quality of the technical equipment that is produced, but also excellent servicing both of the equipment they deliver and the equipment they use themselves. Only then will the large expenditures on the assimilation of new technical equipment provide the greatest national economic effectiveness. Yet at the present time these two aspects of the unified process of reproduction of equipment are regarded separately.

The inadequate attention to questions of efficient operation of new technical equipment is reflected in the fact that the final results and losses related to its prolonged assimilation by the consumers frequently go unnoticed. We are presenting a table from which it is clear that the interval between the times when equipment is obtained and when it is put into operation in a number of cases amount to 6-12 months. There is an even longer period between the startup of the

technical equipment and the achievement of the planned indicators in terms of capacity and efficiency. It frequently amounts to 3-5 years, and sometimes the planning indicators are not reached at all (when the equipment begins to become obsolete or when it has been acquired without accounting for the specific conditions of the enterprise).

Using the example of the 6305 MF4 processing center, let us consider in greater detail the losses which the enterprise sustains as a result of prolonged assimilation of the machine tool. Instead of 7 machine tools and 12 workers which this processing center could replace, it released only 2 machine tools and 3 people during the first 2 years. Because of its inefficient utilization (with considerable expenditures on amortization, repair and so forth), losses from operation amounted to 13,100 rubles in the first year, 11,000 rubles in the second year, and 1,500 rubles in the third year, and it was not until the fourth year of operation that there was an economic effect of 1,200 rubles. During the 4 years the total net losses from the operation of the 6305 MF4 processing center amounted to 24,400 rubles instead of producing an effect of 72,000 rubles.

Another 7 different processing centers are being used at this enterprise with an overall cost of 1.22 million rubles. The potential economic effect from the entire time of their operation could amount to 800,000 rubles, but actually during this period the enterprise received an effect of 26,000 rubles. Thus the national economic losses because of delay in assimilating new technical equipment amounted to 774,000 rubles. The reason for the delay was that the production was not prepared for the utilization of this kind of equipment. Thus the 6305 MF4 processing center, which has extensive technological capabilities, for a long time manufactured only one part with a simple design.

The planned indicators of new machines are reached even more slowly at enterprises that do not have experience in assimilating complex models. For example, a machine building plant received a KD-06 drilling machine with numerical program control for producing openings in printed circuit cards. The preparation for its operation was carried out late and unsystematically. The service personnel, for example, began to make preparations only after the machine was installed, which caused a delay of 6 months. After this they began to be concerned about special drills and fittings to fasten the printed circuit cards on the machine table. Then it became clear that the KD-06 machine was not included in the overall technological schema for the manufacture of printed circuit cards, which was based on less productive equipment of the laboratory type. It was necessary to change the technology for the manufacture of photographic templates, to acquire modern coordinographs, and to modernize the exposure apparatus . . . the enterprises do not always take into account the fact that during the course of technical progress it becomes more and more important to assimilate not units of equipment, but systems of machines which provide for comprehensive introduction of principally new, highly effective technology. As a result, during the 3 years of operation of the KD-06 machine tool, the plant sustained losses of more than 20,000 rubles instead of obtaining a profit.

There are also long delays in the assimilation of new technical equipment at large, well-organized enterprises. For example, at the Saratov bearing plant, which regularly meets its planning indicators, in the instrument shop at the beginning of the 10th Five-Year Plan a section was created which was equipped

Table. Indicators of the Assimilation of New Equipment at Several Machine Building Enterprises of Saratov

| Name and Model of Equipment | Book value, thousands of rubles | Date received at plant | Date of startup | Actual integral coefficient utilization in years of operation | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | 1st | 2d | 3d | 4th | 5th |
| Multioperational machine tool with numerical program control of the type of the 6305 MF4 processing center | 141.6 | Sept. 1976 | April 1977 | 0.21 | 0.3 | 0.46 | 0.54 | 0.7 |
| 2623 processing center | 272.0 | Sept. 1979 | May 1980 | 0.18 | 0.32 | -- | -- | -- |
| 6M610 MF3 processing center | 264.0 | May 1979 | July 1979 | 0.16 | 0.28 | 0.36 | -- | -- |
| 1540 F2 machine tool with numerical program control | 160.0 | Feb. 1978 | May 1978 | 0.3 | 0.42 | 0.56 | 0.7 | -- |
| 1463 F2 machine tool with numerical program control | 240.0 | March 1978 | July 1978 | 0.24 | 0.4 | 0.51 | 0.6 | -- |
| APG-35 automated galvanizing line | 64.0 | June 1976 | Feb. 1977 | 0.2 | 0.4 | 0.4 | 0.48 | 0.54 |
| DK-06 drilling machine with numerical program control | 48.0 | Feb. 1978 | June 1979 | 0.1 | 0.2 | 0.41 | -- | -- |

Integral coefficients were obtained as the product of the coefficients of extensive and intensive utilization of equipment. The coefficient of extensive utilization was derived as the ratio between the time of operation of the new technical equipment in hours and the plan (based on 2-shift operation). The coefficient of intensive utilization was determined as the ratio between the actual effect per hour and the potential possible effect according to the plan, taking into account such indicators as productivity, degree of utilization of technological capabilities of the new equipment, efficiency of removal of processed parts, level of multi-machine service.

with 16 machine tools with numerical program control, costing about 675,000 rubles. According to the plan the conventional annual savings was to be 296,000 rubles. But the actual operation of the equipment in the section has been at a loss, which is explained mainly by inefficient loading of it--by approximately one-fourth. This was brought about by a number of factors, among which the most typical are the following:

when planning the section calculations were not made which would provide for full loading of its capacities, and also a correct selection of parts;

long-range, current and operational planning of the work of the section was not organized properly, nor was the accounting and control over its actual loading;

they did not account for the fact that the introduction of principally new technical equipment requires organizational restructuring of a number of related sections involved in servicing it;

they did not eliminate shortcomings in the training and retraining of personnel or their incentives for rapid assimilation of the new technical equipment; in particular, they did not resolve the social aspects of this problem.

The prolonged delay (1.5 years) of the startup of the LT-03 automated line for stamping billets for bearings also led to considerable losses at this plant. The line costs about 850,000 rubles and was being delivered from the Voronezh plant throughout 1979, but it was not put into operation until June, 1982 instead of the first quarter of 1980, that is, 2.5 years after it was received and a year and a half after the earmarked date. The reasons for the delay were the fault both of the supplier and of the consumer.

Cases of prolonged assimilation of new machines in various branches have been cited in the press. Thus in heavy machine building during the first year of operation of new technical equipment they have realized less than 1 percent of its overall actual effectiveness, the second--2 percent, the third--15 percent, the fourth--32 percent, and the fifth--40 percent.* The losses involved with the delay of the assimilation of new technical equipment by the consumers on the scale of the national economy amount to billions. All this shows that in this area there are essential shortcomings both in the practical organization of the work and in the scientific development of the problem.

One of the main reasons for the prolonged assimilation of new machines in operation is that preparatory work necessary for starting up complicated new equipment and reaching its planned effectivness is usually separated into an independent complex. As a result, much of this work is carried out unsystematically and not promptly, and some of it is not done at all.

The entire complex of scientific research, design-technological, organizational and planning-economic work for creating new technical equipment, which is necessary for accelerated assimilation of new equipment and their achievement of their planned capacity and effectiveness, was conventionally given by one of the authors

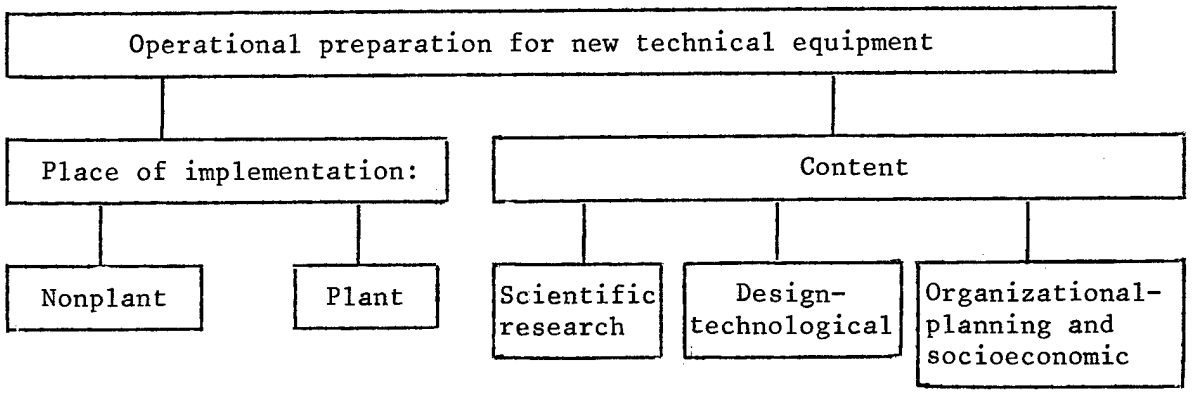
*Blyakhman, L. S., "Ekonomika nauchno-tekhnicheskogo progressa" /Economics of Scientific and Technical Progress/, Moscow, "Vysshaya shkola", 1979, p 40.

of the article as operational preparation or preparation for consumption.* It should be planned, taken into account and supervised in the same way as technical preparation of production is (TPP).

But while there is extensive literature concerning the TPP, the operational preparation was investigated quite inadequately, and there are no special category or terms which would reflect this great and important complex of work and production relations.

The figure gives the main work included in operational preparation. It uses the example of machine tools with numerical program control--equipment which is fairly typical for the problem being considered.

Figure.




Nonplant operational preparation is done both by the manufacturing plants and by the administrative agencies, and plant preparation is done directly at the consumer plant.

Scientific research preparation includes the entire volume of scientific research work and experimental design work directed toward putting the machines into operation as quickly as possible. It is done both by the creators and the consumers of the machines.

Plant design and technological preparation includes: selecting new equipment and the parts that are to be processed on it; writing technologies and programs for these parts; analyzing the designs of new machines (in cases where further development is necessary); selecting the position for introducing the new machines into the existing or planned system of equipment and technology; planning and manufacturing stands and equipment necessary for repairing and adjusting new machines, and also the necessary fittings and instruments.

Within the framework of organizational-planning operational preparation one develops a plan for preparation and the assimilation of new equipment and draws up the estimated expenditures; the system of repair and service for the new

*Ulitskiy, A. I., "Tekhnicheskiy progress i ekonomika predpriyatiy" [Technical Progress and the Economy of Enterprises], Moscow, "Mashinostroyeniye", 1980.

equipment is organized; technical norms and the system for stimulating the most rapid achievement of the planned indicators are determined; the planned and actual load as well as the effectiveness of the new equipment are calculated; personnel are trained, retrained and redistributed; operational-production planning is improved; a functional structure is developed and there is a normative establishment of interrelations among services involved in operating the new equipment; multimachine service is organized and work schedules are drawn up.

The entire process of assimilating new technical equipment and a level of preparation that corresponds to it should be divided into technological assimilation --when new technology is assimilated on the new equipment; production--when the planned capacity is reached; and economic--when the planned effectiveness of the equipment and operation are reached. This stage is the final goal of the assimilation.

Let us consider in more detail certain areas of operational preparation.

Nonplant operational preparation is frequently given less attention than plant preparation. Yet it includes a large complex of scientific research, organizational -planning, production-technical and economic work.

Administrative agencies of the client plants must be concerned above all about the demand for new machines and that their sequence is determined correctly. For new equipment is initially produced in a small quantity and can satisfy only an insignificant part of the demand. Therefore it is important to deliver it primarily to plants which will provide for maximum effectiveness and which are most prepared for its introduction.

It would be of great significance if the consumer ministries would develop and establish (with the participation of the scientific research institutes and the enterprises themselves) directive time periods within which new equipment is to reach its planned indicators (in terms of the main groups of equipment) which, correspondingly, would provide control over the achievement of these indicators.

Nonplant operational preparation should play a larger role in the administrative agencies of the branches and the manufacturing plants that produce the new technical equipment. Some leading enterprises have already organized a system of machine service. It provides comprehensive servicing for the consumers, beginning with assistance in reaching the planned indicators of the equipment and ending with the supply of spare parts, participation in modernization, and so forth. This is the way the Ivanovo machine tool building association operates, for example.* But the scope of this kind of work is still clearly inadequate; there is no system for organizing it on the level of machine building enterprises. In his speech at the 26th CPSU Congress, N. A. Tikhonov, speaking about the tasks of machine builders, emphasized: "This branch is called upon not only to produce modern technical equipment, but also to actively contribute to its effective operation for the consumers."

Strengthening the ties between the producers and the consumers is not, as they say, a one way street. There will be great technical and economic advantage not only for the clients, but also for the manufacturers of the new technical

*See the article by V. P. Kabaidze, EKO, No 1, 1982.

equipment: only on the basis of comprehensive information about the operational specifications is it possible to improve it and increase efficiency.

The introduction of a system of indicators that would make it possible to evaluate and stimulate the work of the producer plants not only in terms of the results of "their own" autonomous financing, but also in terms of national economic effectiveness would be of great significance for giving the producers of new technical equipment greater motivation to increase its effectiveness for the consumer. This is envisioned by the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 and the decisions of the 26th CPSU Congress. A large amount of work will have to be done here, especially to improve the methods for determining the actual effectiveness.

A powerful factor in influencing the manufacturers would be strengthening the khozraschet approach by the consumer to the purchase of new machines. Certain enterprises have created specialized khozraschet subdivisions that handle technical re-equipment of production (the Sverdlovsk machine building plant imeni M. A. Kalinin, the Berdyansk Azovkabel' plant, and others). But the scope of this work is still inadequate.

The experience of industrially developed countries is of interest.* Thus the majority of large firms and enterprises of the United States have created divisions which deal with the updating of equipment. Workers of these divisions regularly visit not only the supplier plants, but also enterprises where equipment is exported so as to gather the necessary information. After the acquisition and adjustment of new machines and their continuous operation for a period of from 6 months to a year, the divisions analyze the actual data of the effectiveness and compare it with the initial calculations in order to prevent in the future the possibility of repeating mistakes and to increase the responsibility of personnel engaged in selecting and operating the equipment.

For economic orientation in this issue certain foreign machine building firms include a calculation of the effectiveness in an appendix to the catalog of their products. Of course, one must be extremely critical about the effectiveness advertised by the firm under capitalist conditions. Yet the very idea of attaching these calculations to price lists for costly equipment, indicating the effective sphere of its application, seems fruitful. Under the conditions of socialist management there is a possibility of enlisting for the calculations uninterested organizations who could ensure their objectivity.

Planned management creates the possibility of efficiently controlling the process of updating equipment at all levels and, consequently, considerably increasing the effectiveness of this work. In particular, it is expedient even in the stage of design preparation to establish not only the limit price of a new machine, but also the minimum national economic effectiveness for the main categories of consumers.

The establishment of the opitmal volume and structure for updating the technical base, the selection of highly efficient technical equipment, its coordination with resources, suppliers and delivery times, and so forth--all these are most

*"Planirovaniye zameny oborudovaniya" [Planning the Replacement of Equipment], ed. by V. P. Aleksandrov, Kiev, "Naukova dumka", 1975, p 222.

important initial stages both of nonplant and of plant operational preparation. They include a complex of other important jobs whose content and volume can be established only after careful analysis of the changes made by the new technical equipment in the technology, organization and economy of the production. Analysis shows that in a number of cases these changes are extremely essential and depend on the degree of innovation and the complexity of the equipment, the scope of its introduction, and so forth. The utilization of robots, whose output should increase 8-fold under the 11th Five-Year Plan as compared to the 10th, requires a large amount of operational preparation.

In order to increase the efficiency of new technical equipment it is necessary to take into account the fact that it frequently has a high degree of selectivity and has its own efficient area of application. Therefore, an exceptionally large amount of attention should be devoted to accounting for its efficiency under specific conditions even in the stage of operational preparation. Calculations of efficiency should be made before the equipment is obtained, as should the maximum possible amount of the work for operational preparation.

In the first stage of operational assimilation organizational-economic preparation is exceptionally important. The introduction of machine tools with numerical program control, for example, sets serious tasks for operational-production planning and the introduction of a dispatcher system. Analysis of the work of one of the sections of machine tools with numerical program control, on which 310 kinds of parts are processed, showed that for processing 11.3 percent of the parts the operator can handle 2 machine tools instead of one. For 14.5 percent of the parts--3 machine tools, and for 67 percent--4 machine tools.* But to do this it was necessary to implement measures for improving the planning and organization of the labor of people who operated many machine tools, for correct selection and distribution of the equipment in the section, for improvement of the servicing of the working positions, for norm setting, for providing incentives for the labor of operators and adjusters, and so forth.

The assimilation of new technical equipment depends to a decisive degree on the training of personnel. This pertains first of all to adjusters, operators, masters, technologists, programmers and also workers in charge of technical servicing and repair of this equipment, especially electronic systems.

Of no less importance is the development of a system of material incentives that stimulate more rapid assimilation of new technical equipment. In order to reduce the time periods for achieving the planned capacity, the machine tool building production association included as an additional indicator for awarding bonuses the coefficient of the utilization of machine tools with numerical program control. Depending on the number of these machines in the shop (section) and the coefficient of their utilization that was reached, the amount of the bonuses for engineering and technical personnel can be increased by 25 percent or reduced by 10 percent.

*Zhitnaya, I. P., Zhitnyy, Ye. P., "Effektivnost' primeneniya stankov s chislovym programmnym upravleniyem" [The Effectiveness of the Application of Machine Tools With Numerical Program Control], Kiev, "Tekhnika", 1976.

Even a brief discussion of the complex of work which must be included in operational preparation for complicated new machines shows how important and multifaceted it is. The fact that this complex of work has not yet been separated into an independent planning-economic and organizational-production category and has not been included in scientific and production "vocabulary" and is not being carried out in a planned way is one of the main reasons for the prolonged assimilation of highly productive and costly technical equipment and the large national economic losses that this entails.

Under the 11th Five-Year Plan machine building enterprises should produce many thousands of units of complicated new equipment amounting to tens of billions of rubles' worth. We can no longer reconcile ourselves to the fact that obtaining the proper effect from this most valuable resource takes many months and sometimes even years.



11772
CSO: 1820/81

MACHINE TOOL STOCKS NEED BETTER PLANNING, ADMINISTRATION

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 66-71

/Article by V. P. Goremykin, candidate of economic sciences, Central Scientific Research Economics Institute under the RSFSR Gosplan (Moscow): "Analysis of Machine Tool Stocks Suggests . . . "/

/Text/ In order to develop ways of more efficiently operating the machine tool stocks, the Central Scientific Research Economics Institute under the RSFSR Gosplan has conducted a special investigation of the branches of the republic's national economy. We studied the distribution of the machine tool stock, its technological and growth structure, and indicators of its operation: the coefficient of shift work, the main kinds of products manufactured on metal processing equipment, the output of products per unit of equipment, and also the number of machine tools.

In order to create a more complete picture, the machine building complex was conventionally divided into 3 parts:

the first part--equipment installed at enterprises of machine building ministries (first machine building);

the second part--equipment operated at machine building plants of nonmachine building ministries and departments (second machine building);

the third part--equipment operated at numerous repair and mechanics shops and at sections of nonmachine building enterprises (third machine building).

The first two subdivisions comprise the branch "machine building and metal processing" and are included in the forms for statistical accounting. The third machine building is not included in statistics, planning or accounting. Fixed capital in this part and personnel employed in work of a machine building nature are actually outside the branch. But yet 42.5 percent of the stocks of metal processing equipment of the RSFSR is concentrated here.

Analysis shows that the ratio between the parts of the complex that exist in the republic impedes further development of machine building as a whole and delays the resolution of the most important national economic tasks.

According to data from 1-time investigations conducted by the USSR Central Statistical Administration, the coefficient of shift work in 1977 was established at the level of 1.36 for the country as a whole, and at enterprises of machine building ministries on the territory of the RSFSR--1.35 (with the scientifically substantiated coefficient being 1.7-1.8). At enterprises of the second machine building in the republic it was 1.14. A selective investigation of the shops and sections of the third machine building shows that here the coefficient of shift work does not exceed 0.3-0.5.

In 1977 enterprises of the first and second part of the republic's complex produced a gross machine building and metal processing output that was 185 times greater than that produced in shops and sections of the third part of machine building, where the output of products per unit of equipment, as a rule, did not exceed 4-8 percent, and labor productivity--20-40 percent of the corresponding indicators of machine building enterprises.

Thus 42.5 percent of the entire stock of machine tools in the Russian Federation operated by the third part of machine building do not produce the proper return for the national economy, and a considerable part of the fixed industrial production capital is frozen. Calculations show that when a coefficient of shift work of 1.3-1.4 is achieved here for the output of the same volume of products the third part of the republic's machine building will require 1.2 million fewer units of machine tools.

The reasons for the unsatisfactory utilization of equipment in the third part and, to a lesser degree, in the second part of machine building subdivisions consists in the low level of specialization and concentration of production, organization and administration, and also the inadequate provisions of personnel.

While in the first part one enterprise has an average of 680 units of equipment and 1,900 workers in machine building occupations, in the second part these figures are 105 and 235, respectively, and in the third part--11 units and 7 workers in machine building occupations (including 3 machine tool workers). Thus the level of concentration of metal processing equipment and machine building workers in the second part of machine building amount to 15.4 and 12.4 percent, respectively, and in the third part--1.6 and 0.4 percent of the level achieved in the first part of machine building.

Among the kinds of machine building products and services provided by enterprises of the second and third parts of the machine building complex, the greatest proportion (in terms of gross output) is comprised of: repair and output of spare parts (48 percent), production of machines, equipment and means of mechanization (28 percent), and the output of consumer goods (9 percent).

The republic's machine tool stocks continues to have a large proportion of less progressive equipment. In particular, the proportion of lathes in 1975 was 10 percent higher than in the United States. At the same time the proportion of machine tools intended for finishing work (polishing, honing and so forth) is lower.

The age structure of the stock of equipment outside of machine building is practically the same, although in individual ministries, especially where new enterprises are being constructed--for instance, in the Ministry of Light and the Food Industry, the Ministry of the Textile Industry--the machine tool stocks can be younger. But in a number of cases, especially where the equipment is disbursed among numerous small subdivisions, it has become obsolete and worn out. For example, 70-80 percent of the metal processing equipment used in the RSFSR Ministry of Construction Materials is so outdated and worn out that it cannot be transferred to machine building subdivisions.

The analysis that was conducted made it possible to develop the concepts of increasing the efficiency of the utilization of metal processing equipment in the republic. The general direction is undoubtedly acceleration of the development of the first part of the machine building complex and improvement of its structure. The machine building branches must create subdivisions for repairing equipment that is produced and increase the list of kinds of manufactured technical equipment and means of mechanization, including on individual orders from consumer enterprises. We need experimental plants and "small series" plants for producing special kinds of equipment that is used in small quantities. It would be expedient to separate and organizationally form indepdendent branches for centralized production of products for general machine building application (hydraulic equipment, regulators and so forth) and a repair industry. This would gradually eliminate the need of nonmachine building branches for machine building and repair enterprises and, consequently, for the present amounts of equipment.

Such transformations require a considerable amount of time and therefore it would be incorrect to be oriented only toward the general direction and not take into account the possibilities which would be produced by more complete utilization of machine building capacities that have already been created in the ministries and departments of the RSFSR. Since the second part of the complex has better indicators than the third, one should concentrate the production of products and services of a machine building nature at specialized machine building and metal processing enterprises that are within the system of other branches.

These specialized enterprises can be both branch and interbranch enterprises which satisfy the needs of the enterprises within a city, oblast or economic region, and, in individual cases, also the republic, for spare parts, means of mechanization, repair service and so forth.

During the transitional period it is necessary to take fuller advantage of the capacities of the third part of the complex. To do this it will be necessary to improve the planning of their operation and their provision with material and labor resources. We think that it would be expedient to leave 12-16 percent of the machine tool stocks in machine building and metal processing enterprises.

In order for this work to be systematic and purposive, it is necessary to have planning documents that regulate it--comprehensive programs for increasing the efficiency of the utilization of machine tool stocks in the branches and at enterprises which are combined into a special-purpose program for the republic. Their task is to envision fuller satisfaction of the needs of all the branches

of the RSFSR national economy for spare parts, means of mechanization, nonstandard equipment, repair work and other kinds of products and services of machine building and metal processing.

In our opinion, the ministries and departments of the RSFSR should develop, coordinate and approve general plans for the development of a repair base for their branches on the basis of specialization and concentration of production.

The next important area when drawing up a program is the creation of specialized capacities for manufacturing nonstandard equipment, means of mechanization and organizational and technical supplies. This work is especially crucial since it makes it possible to raise the level of automation and mechanization in loading and unloading and auxiliary operations, where more than 50 percent of the workers are employed in the RSFSR and, consequently, will make it possible to release some of these people.

Methodological guidance and coordination of the efforts of the ministries and departments of the RSFSR in preparing special-purpose comprehensive programs for increasing the efficiency of the utilization of metal processing equipment are the function of the planning agencies. It is expedient to create working groups for this. In the RSFSR Gosplan such a group would be responsible for all the work as a whole, and in the individual ministries and departments--within the realms of their branches.

After their development and approval, special-purpose comprehensive programs should become an indispensible part of annual and five-year plans of the ministries and departments of the RSFSR. In particular, it would be expedient to envision in annual plans assignments for increasing the coefficient of shift work and creating specialized capacities for producing nonstandard equipment, means of mechanization and organizational and technical supplies.

All these measures will produce a significant economic effect. But it will be greater if union machine building ministries participate in the development and implementation of the special-purpose comprehensive program for increasing the effectiveness of the utilization of metal processing equipment since it is mainly an all-embracing approach to the problem and the inclusion of all involved organizations that will make it possible to develop a program that is optimal from the national economic standpoint.

Practically nobody is in control of the process of the formation of the machine tool stocks in the various branches of the national economy. Only the amount of equipment allotted to one ministry or department or another is planned centrally. And within the ministries and departments the stocks are not planned either in terms of composition or in terms of the indicators of operation, and this leads to underutilization of them and to freezing of the active part of production capital.

It would be expedient to change over to centralized planning not only of the output of equipment, but also of the structure of the stock of equipment in the branches of the national economy as well as its updating, modernization and

capital repair. Planning these indicators will make it possible to determine with a greater degree of reliability the machine building products and labor resources that are necessary for production and to increase the efficiency of their utilization.

Another problem which must be resolved not only in individual republics, but centrally, on the scale of the national economy, is repair. Firm repair in the Ministry of the Machine Tool and Tool Building Industry amounts to only 2-3 percent of the actual need for it. It is possible to organize firm repair of metal processing equipment and to create specialized repair capacities by transferring some of the amortization deductions from the branches that operate the machine tools to the Ministry of the Machine Tool and Tool Building Industry, making it responsible for functions of capital repair. This approach will create motivation for the manufacturers of the equipment to organize specialized repair capacities.

The general director of the Krasnyy proletariy machine tool construction association, O. A. Korolev in an EKO "round table" conversation noted that in order to develop service it is necessary to have the economic prerequisites. The basis of the organization of firm service is the responsibility of the enterprises for continuous operation of the equipment throughout the time it is to be working. It is necessary to change over to planning the volume of service (repair) for each machine tool building enterprise, having earmarked funds, staffs and volumes of work for these purposes.

These issues are especially critical in the new stage of development of machine tool building, which is characterized by increased output of machine tools with numerical program control, robots and automated lines. One cannot successfully change over to new technical equipment and technology without changing the approach to machine servicing and control of them.

There is now a need to create a unified scientific center which would determine the prospects for the development of the machine building complex as a whole, based on unified national economic criteria. It would gather together and analyze the latest achievements in the areas of technical equipment, technology and the economics of machine building, and work out scientific fundamentals for the development of machine building today and tomorrow as well as determine the priorities for the development of branches of machine building, that is, form the strategy and tactics on the basis of general national economic tasks. And from here it would determine the tasks for individual branches, including machine tool building.

Thus the republic comprehensive program can be only a part of the overall work. It is necessary to relate it to a unified system of efforts of the entire machine building complex for providing the national economy with services and products of machine building and metal processing.



11772
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MORE ECONOMICAL PRODUCTION OF CUSTOM-MADE, SMALL-BATCH MACHINE TOOLS EXAMINED

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 72-75

/Article by S. Yu. Krichevskiy, economist, and A. N. Prokhorchik, deputy chief of the planning and economics division, State Bearing Plant No 11 (Minsk): "It is Costly and Difficult to Make One's Own Machine Tools"/

/Text/ Why Costly and Difficult?

In the article entitled "VAZ; From the Standpoint of a Benevolent Client" (EKO, No 1, 1982) it is correctly noted that the Ministry of the Machine Tool and Tool Building Industry is not providing for the updating of the stocks of specialized machine tools and the Ministry of the Automotive Industry has been forced to organize its own machine tool building. Thus the machine tool building shop created at our plant less than 5 years ago has increased the volume of equipment produced 4-fold. But having our own machine tool building has given rise to many problems at enterprises of the branch.

Machine tool building is developing at our enterprises in the form of individual and small series production which is distinguished by a large list of products and small batches of them. Thus our machine tool shop produces 30-40 kinds of products while at this level of organization of production, according to the calculations of specialists, 6-8 kinds would be optimal.

Machine tool building design and technological services are overloaded. In 1981 labor expenditures for design developments amounted to 140 percent of the average branch norms, and for technological developments--149 percent, which reduces the quality of the developments.

Production with many kinds of products and small series makes it impossible for machine tool builders of GPZ-11 to fulfill planned assignments successfully. In 1981 the machine tool building shop fulfilled the plan for commercial output by 81.4 percent and for the products list--by 44 percent; the level of the output-capital ratio amounted to 81.2 percent of the planned amount. In 1981 only 31.5 percent of the increase in output was achieved as a result of increasing labor productivity. The level of output of the shop workers is 41.4 percent of the average plant level.

Great difficulties are brought about by the material supply for machine tool building of "various sizes." The chronic shortage of the necessary profiles of metal and batching items makes production less rhythmical, and the deadlines for manufacturing machine tools are not met. During the third 10-day period of each month of 1981 only 78 percent of the entire volume of work was done, which led to a deterioration of the quality of the machine tools.

Machine tool building at GPZ-11 is not very profitable and has a negative effect on the overall rhythm of the operation of the enterprise. The same conclusion, with existing information, can be drawn about machine tool building shops at other bearing plants.

The authors of this article conducted a technical and economic analysis of the main parameters of analogous machine tools produced by our shop and the Minsk machine tool building plants. From the table it is clear that the machine tools from GPZ-11 are appreciably more expensive than their analogs from series manufacture and are considerably behind them in terms of innovation and originality of designs.

Table. Comparative Description of Several Technical and Economic Parameters of Machine Tools Produced by GPZ-11 and Minsk Machine Tool Building Plants, %

| | Machine Tool Building Plants | GPZ-11 Machine Tool Shop |
|---|---|---|
| Production cost of machine tool | 100 | 140 |
| Including | | |
| Expenditures on basic materials | 100 | 110 |
| Expenditures on basic wages | 100 | 180 |
| Labor expenditures on manufacture of machine tool | 100 | 180 |
| Number of innovations applied in design of item | 100 | 25 |

This situation is exacerbated by the fact that the planning of machine tool building production on the part of the Ministry of the Automotive Industry is limited to the delivery of assignments by the enterprise for producing machine tools. The planning of the products lists, research by the clients, study and accounting for market conditions for intrabranch consumption of the machine tools must be handled by the plants themselves, which are neither technically nor organizationally prepared for carrying out these functions.

And so neither from a branch nor from a national economic position can the development of machine tool building at bearing plants be considered effective.

What Can be Improved

Raising the level of specialization of machine tool building shops and transforming them into mainly series production shops would make it possible to achieve a considerable increase in the efficiency of internal machine tool building. And, in our opinion, it is necessary to begin with restructuring the system of its planning in the branch.

The authors have made an attempt to calculate the optimal structure of the output of products for the GPZ-11 machine tool building shop for 1983. The task was formulated in the following way: to determine the structure of output (the ratio between items of series and unit production) which provides conditions for fulfillment of the production assignment with minimum expenditures. Limitations were set in terms of the volume of production and labor expenditures (the main limiting factor at the GPZ-11). The objective need for unit production of machine tools along with series production was also taken into account.

For the calculation we used average figures for expenditures on one machine tool obtained on the basis of analyzing the production cost and labor-intensiveness for the whole list of products of the shop and information about the production cost and labor-intensiveness of analogous items of machine tool building plants in Minsk.

The calculations showed that the optimal structure for the output of the machine tool shop in 1983 should be as follows: 87.5 percent--items of series production, and 12.5 percent--items of unit production. Only under these conditions will the production costs be minimal, and it will not be necessary to increase the number of personnel in order to fulfill the planned production assignment.

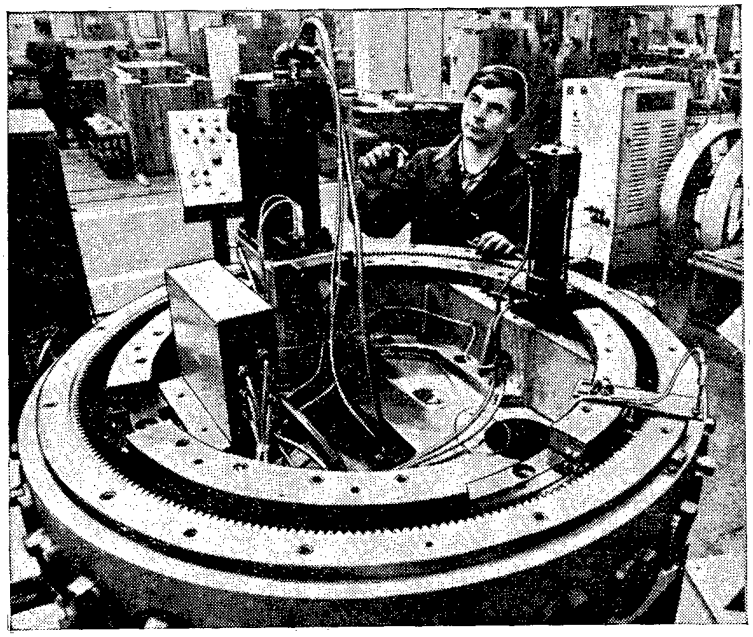
The following policy for planning is suggested.

The enterprises prepare figures concerning the optimal possibilities of plant production, which in the second stage of planning should be studied by the head scientific research institutes of the subbranches of the automotive industry (in our subbranch--the Scientific Research Institute of the Bearing Industry). It is precisely these head institutes, which through their branches concentrate all the information about the technical and economic capabilities of the plants, which can and should take the responsibility for work to determine the optimal products list for the output of machine tools as well as the specialization.

In the third stage of planning the suggestions from scientific research institutes should be considered and approved by the ministry as directive assignments for the enterprises. Since machine tool building has been given an "extended registration" in the branch, the creation of machine tool building shops (sections) must be envisioned as early as the stage of planning new enterprises.

The proposed policy for planning will make it possible to change over from unit manufacture of specialized machine tools to series production of systems of items that are homogeneous in design and technology. Broad possibilities

will be opened up for applying specialized equipment and technological fittings in one's own machine tool building, as well as advanced methods of labor organization, automation and mechanization of production, and intensive utilization of existing resources.



The collective of the Ivanovo Machine Tool Building Association imeni 50-Letiye SSSR produces highly effective multi-operational automated machine tools with numerical program control--processing centers. Each machine tool makes it possible to increase labor productivity 3-8-fold. The high quality of the work of the processing centers is provided by preliminary testing of components on special stands.



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PROBLEM OF MACHINE TOOL DOWNTIMES ADDRESSED

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, 1983 (signed to press 5 Jan 83) pp 76-85

/Article by A. G. Zelenskiy, candidate of economic sciences, sector chief of the Scientific Research Institute of Planning and Norm Setting of the USSR Gosplan, and N. V. Ivanov, subdivision chief of USSR Gosplan (Moscow): "Problems of Idle Machine Tools"/

/Text/ During recent years the availability of technical equipment for many branches of the national economy has increased considerably. At the same time, for individual kinds of technical equipment, primarily metal processing equipment, there has been an undesirable tendency: an increase in the overall stocks of metal cutting machine tools with inadequate concentration of them in machine building and metal processing. According to our calculations the stocks of metal cutting machine tools in the national economy as a whole in 1980 increased by more than 25 percent as compared to 1972. At the same time the proportion of machine tool stocks in the branches of machine building and metal processing increased insiginificantly during the period from 1972 through 1980, and in 1980 amounted to less than 56 percent of the unionwide stocks, which is less than the data from the 1962 census (58.6 percent).

The main reason for this situation is the existing practice of distributing machine tools for increasing stocks and for replacing obsolete and worn-out equipment. During recent years no more than 25 percent of the new machine tools were used for replacing outdated metal cutting equipment. As a result the stocks are updated at extremely slow rates. Thus in 1980 the coefficient of removal of metal cutting machine tools at enterprises of machine building ministries amounted to only 2.5 percent. As a result, the age structure of the stocks deteriorates. During the past 5 years alone at enterprises of machine building ministries the number of machine tools that are 20 years old and older has increased significantly.

In order to keep a large number of outdated, less productive equipment in working condition, each year it is necessary to expend a larger quantity of labor and kinds of rolled metal that are in short supply, thus limiting the production of new technical equipment. In industry the proportion of workers employed in manual labor for repairing and adjusting machines and mechanisms has increased from 12.2 percent in 1969 to 13.2 percent in 1979. The increased stocks of equipment and the growing lack of coordination of individual groups

of it are the main reasons for the low level of operation. The coefficient of shift work for metal cutting machine tools even at enterprises of machine building ministries amounts to an average of only 1.39, and at metal processing enterprises where several millions of metal cutting machine tools are concentrated --0.8-1.2.

Downtime of costly machine tools and equipment that is in short supply cause a great loss to the national economy. For example, in the Ministry of the Machine Tool and Instrument Building Industry in 1978 the coefficient of shift work of special machine tools and sets of them amounted to only 1.31, and in the Ministry of Instrument Making, Automation Equipment and Control Systems machine tools with numerical program control were loaded less than the universal ones.

The stocks of metal processing equipment are growing most rapidly in agriculture. Suffice it to say that in 1980 there were 750,000 units of metal cutting machine tools here, and more than 400,000 of them were concentrated in shops of kolkhozes and sovkhozes while 200,000 of them were in the system of the USSR Goskomsel'khoztekhnika. A serious problem arises: how to further develop the repair base of agriculture and where to concentrate the main stocks of metal processing equipment?

The answer depends on the technical policy in the area of providing agriculture with spare parts. It is assumed that its directions will be clearly determined in the general scheme for the development of the repair base for the country's agriculture. In 1976 the All-Union Scientific Research Technological Institute of Repair and Operation of the Machine and Tractor Fleet worked out a general scheme for the development of the repair base for agriculture for the period up to 1990. But in April 1977 the commission of the state board of experts of the USSR Gosplan declared it to be inadequately substantiated. The completion of the development of the general scheme and the development of new variants are now being dealt with by scientists and specialists of institutes of the Ministry of Agriculture along with the Goskomsel'khoztekhnika. Up to this point they have not reached an agreement. Suffice it to say that in various variants of the general scheme the evaluation of the needs of agriculture for metal cutting machine tools under the 11th Five-Year Plan range from 250 to 500,000 units! Such a disparity is brought about by the lack of a common opinion about who should produce spare parts for the machine and tractor fleet for agriculture: plants that manufacture agriculture equipment, specialized machine building enterprises or plants of Goskomsel'khoztekhnika. It is clear that the solution to this problem in the final variant of the general scheme should be related to the interests of the national economy as a whole and not of individual ministries and departments. In the future the overall tendency should be the same: a reduction of the stocks of metal processing equipment as a result of better utilization of it.

It says in the Food Program of the USSR for the Period Up To 1990, adopted at the May (1982) Plenum of the CPSU Central Committee: "It is suggested that machine building ministries organize the production of spare parts for tractors, trucks, agricultural machinery and technological equipment in keeping with the need for them according to the established norms. The USSR Goskomsel'khoztekhnika should considerably increase the volumes of renovation of warn-out parts."

Concentration of the stocks of metal processing equipment at specialized machine building enterprises should improve its utilization. To this end it is necessary to considerably increase the proportion of new equipment that goes to enterprises of machine building ministries. But this kind of technical policy will be justified only if specialized industries are created for spare parts, other parts and components for modernizing nonstandard equipment at machine building and metal processing industries. The volumes of work for specialized production should be determined on the basis of norms which are so far being developed only for a very limited list of products. In our opinion, the methodological guidance of the development of branch norms of the need for spare parts for all kinds of technical equipment produced in series in the country can be handled by the Scientific Research Institute of Planning and Norm Setting.

By creating a normative base and, on the basis of this, determining the need for spare parts, the USSR Gosplan will have an instrument for planning their specialized production. Moreover, it would be expedient to manufacture the more complicated spare parts, which require special precision equipment and advanced science of production, at enterprises of machine building ministries. The absolute majority of kinds of spare parts can be produced at plants that manufacture machines and equipment. There are reserve capacities for this since the coefficient of loading of metal processing equipment does not exceed 0.75-0.8, and in the Ministry of Chemical Machine Building in 1980, according to calculations of branch institutes, it amounted to only 0.71, in the Ministry of Machine Tool and Instrument Building--0.68, and in the Ministry of Heavy Machine Building--only 0.58.

True, a significant increase in the production of spare parts will require getting rid of the "bottlenecks." In the Ministry of Chemical Machine Building and the Ministry of Machine Tool and Instrument Building this includes the lathe group, and in the Ministry of Heavy Machine Building--automated and semi-automated lathes. At enterprises of each ministry there are individual technological groups of machine tools whose coefficient of loading is less than average. For example, in the Ministry of Heavy Machine Building the tooth forming machine tools have a coefficient of loading of 0.34, in the Ministry of Chemical Machine Building the machine tools for electrophysical and electrochemical processing of metals--0.38, and in the Ministry of Machine Tool and Instrument Building, the slotting machines--0.43. In many machine building ministries the most progressive and costly equipment is loaded not more, but less than the universal equipment.

As we can see, at enterprises of machine building ministries there is equipment (and in a sufficient quantity) on which one could produce an additional volume of products. The increased production of spare parts at machine building enterprises of ministries that manufacture equipment is also possible with an insignificant allotment of an additional quantity of new equipment that is to be used for eliminating "bottlenecks." It is necessary to take a more careful approach to solving the problem of the load on the available stocks of equipment. In the practice of the operation of the majority of machine building enterprises there has been the opinion that light loading of this equipment is inevitable because for many years serious practical measures have not been taken to improve things. In our opinion, it is possible to considerably improve the

unprestigious. This bad reputation was created for it not only by the past, but also by the present of those small plants and shops (and we still have many of them) which have old universal machine tools, no lifting equipment, and the art of production is low. The path to solving the problem is specialization of production on the basis of the application of automated machine tools and special, specialized machine tools with numerical program control.

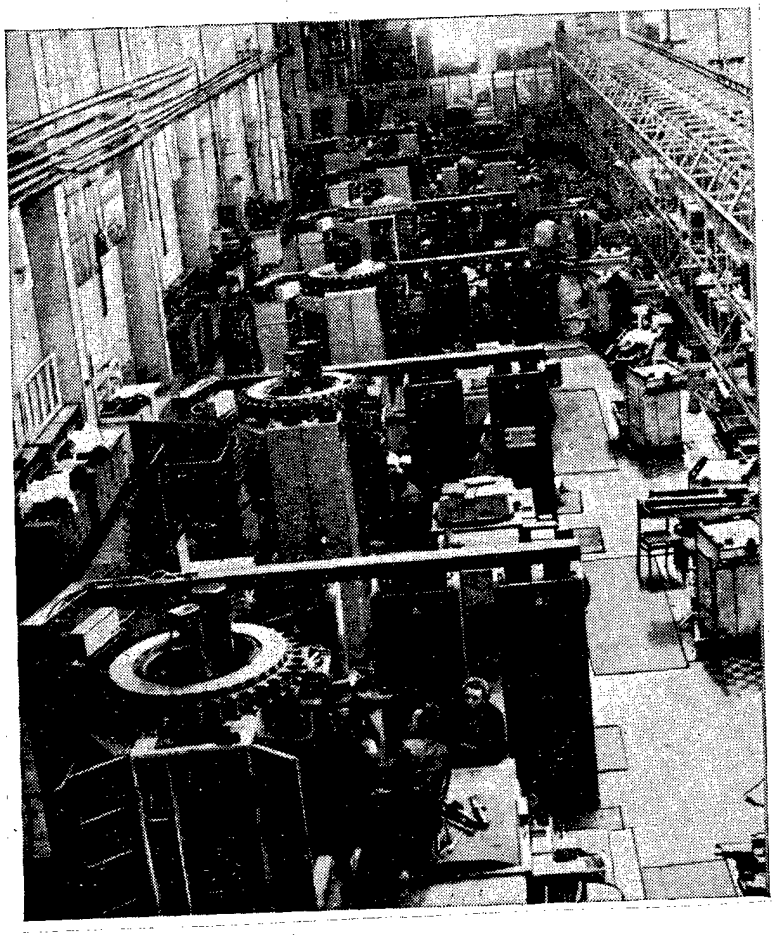
The corresponding machine building ministries and the USSR Gosprofobr even now should be devoting considerably more attention to training machine tool operators for metal working. To do this it is necessary, in conjunction with involved ministries, to make refinements in the plan for the admission and graduation of students of vocational and technical schools, making it incumbent upon the schools to be responsible not only for the overall number of youth who are admitted, but also for the cross-section of individual specialities, taking into account the needs of the base enterprises. For machine building and metal processing enterprises with a large number of industrial production personnel which do not have independent vocational and technical schools, it is necessary to organize regional vocational and technical schools and training-production combines for training skilled machine tool operators.

At many machine building enterprises it is necessary to considerably expand the scale of training of machine tool operators through individual and brigade tutorship. At the enterprises themselves it is expedient mainly to retrain as machine tool operators those workers from other specialties who have been released because of a higher level of mechanization and automation. But it is better to train youth who have just finished school as machine tool operators in the system of the USSR Gosprofobr.

How many machine tool operators are really necessary? The answer depends mainly on the level of automation of the machine tool stocks. So far it is extremely inadequate, which is shown by data concerning the number of operators of many machines. Thus in machine building and metal processing in 1979 their proportion amounted to only 13.3 percent, and 60 percent of them were working on only two machine tools.

According to our consolidated calculations, which take into account the level of servicing of more than one machine tool, the technological structure of the stocks of machine tools, the level of loading of the stocks, the proportion of machine tools with periodic operation and a number of other factors, at enterprises of machine building ministries, for every 100 machine tools there should be an average of 110-130 machine tool operators, and at metal processing enterprises--60-80 machine tool operators. This ratio will make it possible to increase the coefficient of shift work of metal cutting machine tools in machine building to 1.7-1.8, and in metal processing--to 1.3-1.5.

The effect from technical re-equipment of existing enterprises will be greater if the outdated equipment is replaced in groups, in parallel with the assimilation of progressive technology. Then it will be possible, because of the increased productivity of the new equipment as compared to that which is replaced, to replace 2-3 outdated machine tools with one new one.



Moscow. The experimental scientific research institute of metal cutting machine tools, in conjunction with the Stankokonstruktsiya experimental plant, enlisting specialists from institutes and special design bureaus of the country, has created the ASK-10 automated production. The ASK-10 is a flexible system consisting of multi-operational machine tools with numerical program control of the "processing center" type, combined into a unified transport system and controlled on the basis of electronic computers. In the photo: In the shop for automated production of complicated body parts.

The final stage is the development of a long-range balance of capacities for the five-year plan, which will make it possible to coordinate the production plan with the available capacities of the enterprises. Up to the present time many enterprises make a detailed calculation of the balance of capacities after receiving the plan for the production of products. Therefore the capacities are adjusted to fit the plan and this causes only one problem that is not too difficult: to base the plan on a calculation of the capacities. As a result, even with a high coefficient of the utilization of capacities, the shift work of the equipment can remain at a low level for many years.

According to the established methods a plan can be called taut when not only the level of utilization of capacities, but also the load on equipment corresponds to the normative amount. This can be achieved only after conducting a long-term calculation of the capacities of the enterprises. With these calculations and a long-range plan of the list of products that are to be produced it is possible to optimize the distribution of the ministry's products among enterprises according to the criterion of the maximum possible output of products per unit of capacity. Optimization is carried out taking into account the normative level of loading of equipment through maneuvering resources of new equipment and the production program. Consequently, the main test to the utilization of equipment is efficient distribution of new equipment and redistribution of existing equipment in order to achieve full loading of the stocks on the basis of its specialization.

What with the ever increasing tension of the balance of labor resources, continuous growth of the stocks of equipment creates additional difficulties in providing the enterprises with machine tool operators. Thus while in 1969 in machine building and metal processing there were 75 workers for every 100 machine tools, in 1975 there were 62, and in 1979--53. Even at the largest enterprises of machine building ministries there is an average of 80 machine tool workers for every 100 machine tools. The situation is even worse in metal processing: in 14 nonmachine building industrial ministries (for which the USSR Central Statistical Administration has data) in 1979 for every 100 machine tools there was an average of 35 machine tool workers. There are also other ministries where this ratio is even lower. For example, at enterprises of the Ministry of Power and Electrification for every 100 machine tools there are 11 machine tool operators, the Ministry of the Coal Industry--6, and the Ministry of the Gas Industry--4. Can one really be surprised that at the enterprises of these ministries the coefficient of shift work of metal cutting machine tools amounts to an average of 0.6-0.8?

We know the main reasons for the unfavorable ratio that exists: inadequate training of machine tool operators and above all operators of many machine tools, and the extremely high rates of increase in the stocks of equipment with an insignificant proportion of automated equipment.

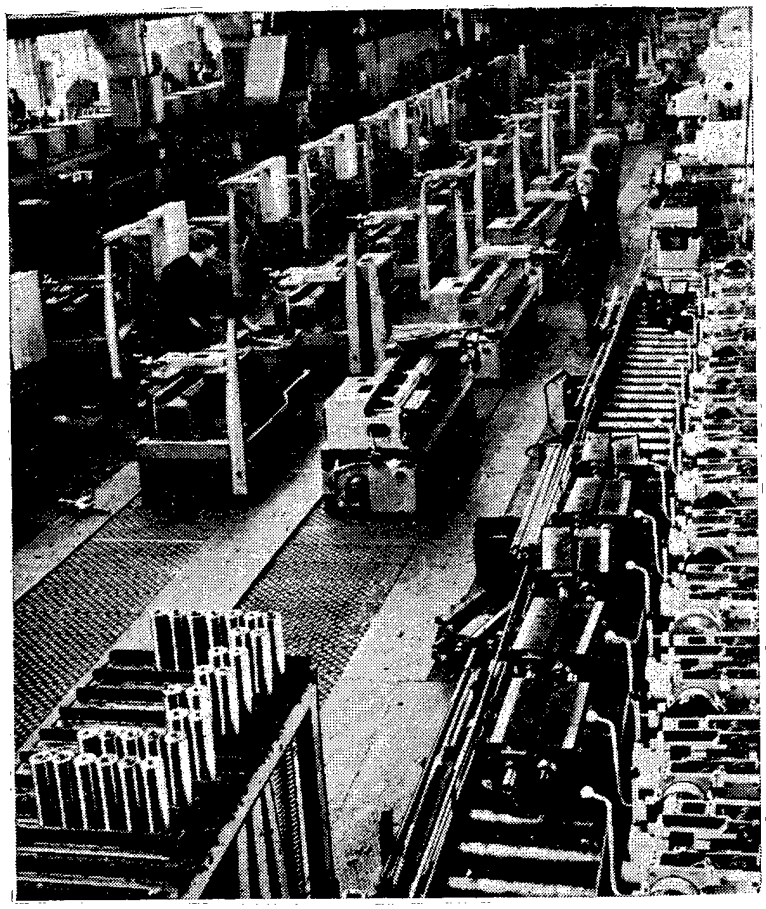
But why does the country not train the necessary number of machine tool operators? We do not really agree with the viewpoint of those specialists who refer to the general shortage of workers. Suffice it to say that from 1969 through 1979 at machine building enterprises where the occupational composition was accounted for, the overall number of workers increased by 16.7 percent, and machine tool operators--by only 9.9 percent. Moreover, from 1975 through 1979 the overall number of workers in industry increased by 6.4 percent, and machine tool operators--by 1.6 percent, as a result of which their proportion in the overall number of workers dropped from 7.2 percent in 1975 to 6.8 percent in 1979. In machine building the number of machine tool operators is increasing at one-sixth the rate of the overall number of workers, and their proportion has decreased from 17.3 percent in 1969 to 15.7 percent in 1975 and to 14.4 percent in 1979.

Consequently it is not a matter of an overall shortage of workers. It seems to us that this problem has socio-economic roots. The occupation of a machine tool operator has been "notorious" for many years as difficult, monotonous and

utilization of metal cutting equipment by optimizing the structure of the stocks. To solve this problem it would be expedient to take the following measures.

Within the framework of the automated control system of the enterprises and branches, to complete an accounting of the availability, movement and utilization of equipment.

With the help of electronic computers, to conduct an annual calculation of the capacities of the plants and make it compulsory to include these data for the all-union production association and the ministry as a whole. We have experience in making these calculations at many machine building plants and even in individual branches. For example, several years ago an electronic computer was used to calculate the capacities of enterprises of the Soyuzkuzmash all-union production association of the Ministry of Machine Tool and Instrument Building.



Machine tools with brand of the Moscow machine tool building association, Krasnyy proletariy, comprise a significant part of the USSR machine tool stocks. Every third lathe operator in the country works on a machine tool manufactured by this enterprise. In the photo: A section for assembling highly productive lathes.

The realization of the trends presented above for effective utilization of the stocks of metal cutting equipment requires that large measures be taken. Let us name the most important of them.

The development of a special-purpose comprehensive program (TsKP) for the repair of machines and equipment. The most important section of the TsKP should be the general scheme for the development of the repair base of the branches of the national economy, taking into account the areas of centralized manufacture of spare parts for machines and equipment at specialized machine building and metal processing enterprises, and also in repair and machine shops and industries. The TsKP for the repair of machines and equipment should be coordinated with branch programs for providing the branches with operational materials and spare parts. It is necessary to develop as part of the TsKP provisions that make it incumbent on machine building ministries, which are the head ministries for producing machines and equipment of a certain products list, to determine the technical policy in the area of repair and production of spare parts.

The distribution of resources of metal cutting equipment on the basis of progressive norms and normatives. Here one should take into account giving priority for progressive new equipment to those machine building ministries (enterprises) where their introduction will produce the greatest national economic effect, and primarily for the replacement of worn-out and obsolete equipment. Equipment is allotted for increasing the stocks only to eliminate "bottlenecks" or if the enterprises have achieved the regulation level of loading of equipment.

Depending on the specific features of a specific industry, one should develop and submit to the enterprises an assignment for the normative value of the coefficient of shift work (load) on equipment. It would be expedient to utilize this indicator as a fund-forming indicator for all machine building and large metal processing enterprises when deducting money into the economic incentive funds. When summing up the results of socialist competition one should take into account the level of utilization of metal cutting equipment as one of the most important indicators that characterize the final results of the activity of the enterprises.

Increasing the admission of youth to vocational and technical schools for training as machine tool operators in order to satisfy the needs of the branches of industry.

Increasing the production of progressive new means of mechanization of labor, primarily for auxiliary production. The released auxiliary workers should be reclassified to work in other specialties, primarily as machine tool operators.

Further improvement of initial accounting of data to obtain systematically reliable information about the availability, movement and utilization of metal cutting equipment.



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SOCIAL ENVIRONMENT AFFECTS, IS AFFECTED BY, INDIVIDUAL MOTIVATION

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 86-99

/Article by Vladimir Sungorkin, journalist (Vladivostok): "Once Upon a Time There Were Some Masters . . ."/

/Text/ How do you understand the work "depot"? Greasy overalls, the smell of fuel oil? A locomotive snorting under a high gloomy roof? It brings to my mind a well lit shop with flowers, air conditioners next to machine tools, pools with blue water and aquariums with lazy goldfish . . .

It is generally thought that it is much more difficult for small enterprises than for giants of industry (VAZ, KamAZ, Uralmash) to improve working conditions. But here on the outskirts of the small city of Ussuriysk there is a depot. There are 2,800 people working there. I will not try to tell you that I selected it at random, as the first typical average enterprise I happened upon. On the contrary: I had heard more than once precisely about the Ussuriysk refrigerator car depot, and about its collective which is advanced in all respects. But it is better to see it once . . .

I Saw It With My Own Eyes

I took a tour of the shops with the secretary of the depot party committee, V. N. Babenko. Next to the machine tools was a large vase of flowers. There were immense colorful pictures on the walls, not with diagrams of the growth of production, but with quiet forest and river landscapes. The elegant mosaic floors sparkled and the private lockers of the workers shone with white enamel. We left the shops and looked at the hockey field with electric lighting, the gorodki field, the shooting gallery and the dining room which had some unbelievable conveyor drum for distributing food and collecting the dishes. We went into the hothouse which is under construction and the stadium. We looked at the apartment building which had been constructed by the workers and the store which had been created by the same method of using their own resources.

"We also have our own tourist base by the sea," the secretary of the party committee recalled, shivering from the cold. "In Lazurnaya Bay. The beach there is golden. We take the people there for recreation with our own bus. Our fishermen have now taken over our tourist base, and they sit for entire days in front of holes in the ice in the bay. The navaga are really biting now . . ."

We crossed the courtyard and looked in at the sports and health complex. The sports courts, the swimming pool, the electrotherapy room, the "oxygen cocktail," the sauna, and the hydrotherapy facility which has baths that accumulate sea water from the bay and Narzan water which is shipped in over 200 kilometers from the famous mineral springs of Shmakovka. There was a weight room and a chess club. There were palms, imported tiles and Indian rugs. It was warm and cozy.

In the winter garden the installers had some notion about installing clever verticle chain conveyors. They explained that the flowers would be moved in a living flow so that each hour new greenery would appear over the entire wall.

In the corridor we encountered a metal worker of the diesel shop, Aleksey Mikhaylovich Kostyayev who has worked in the depot all his life.

"Hey, Mikhalych where are you going?" the secretary of the party committee shouted to him.

"In here, no . . . hell, I don't know,--treatment in general, and you get your shots all at once."

"You just get your shots. Soon perhaps they will put you in the biotron for a couple of minutes and there you will get younger without any shots at all. Don't you snore at night?"

"I don't snore," Kostyayev smiled. "I have lived my life, and I have never heard of any biotrons. But if it is a good thing I will certainly have a go at this biotron."

I had never heard of a biotron either. Somebody at the depot had happened to read about it in a popular magazine: "By resting here for two weeks without a single injection, without taking a single pill, and without a single procedure, people with chronic high blood pressure returned to active labor and a full life, forgetting about their ailments for an entire year." So far the only biotron is in Kiev. An informed person was sent there immediately. Now the depot is constructing its own biotron. I saw a large, quiet, sturdily built room, completely isolated from all the rest of the world. It will be filled with complicated equipment, there will be soft furniture in it and the walls will be covered with cheerful wallpaper with photographs. Within the biotron a special pressure is created--the main therapeutic factor, plus peace, psychotherapy, and a healthy regimen.

Well, all right, the biotron can still be included in the area of the miraculous and exotic. But what about the rest? I walked around and was surprised by everything, but was bothered by a seed of doubt: was there not something ostentatious about all that I had seen? Where do they get the money for this beautiful life? But was what I saw actually so unusual? Everywhere, at meetings and in newspapers we are appealing to one another: man spends the best part of his life at work, long live beauty, comfort and convenience in every working position and all concern for the workers who themselves are the masters of their plant!

But still it is unusual to see all this with one's own eyes. In Ussuriysk, in addition to the refrigerated car station there is also a regular railroad car and locomotive depot and a locomotive repair plant belonging to the same Ministry of Railways. I looked to see how things were with them: they did not have their own stadiums or hothouses, and they do not even dream about swimming pools and other "extras." True, the management stated that they have begun to construct housing through their own efforts, and he added that they were using the model and example of the refrigerated car workers, taking their practice into account.

Turning to Man

An eternal question: Why do some people have certain things while others who live, as they say, across the street, or more precisely in the same Far Eastern railroad city, have none of these things? What is happening here?

Enterprises are like people. The Ussuriysk refrigerated car depot originated during the war period: they gathered platforms here which, according to the "lend-lease" agreement came by sea from our allies. After the war for many years the depot specialized in restoring cars--not a glamorous occupation. And not until 1962 did it become a refrigerated car depot. That is, it was transformed into a base for those refrigerator trains which transport Far Eastern fish everywhere, near and far. The depot workers--mechanics and section chiefs--come to work with large rucksacks, as if for a long march. The distance they usually travel is hardly half the equator. On the operations shop on one wall hangs an immense map of the railroads of the USSR and on the opposite wall under the sign "Telegrams" is a multitude of squares with operational information about routes: "I loaded the fish in Nakhodka and am proceeding to Omsk. Ye. Tutov," "I received oranges in Riga . . . ," "I sold the fish in Kuybyshev . . . ," "I loaded on canned goods in Izmail and am proceeding to the Tekstil'naya station of the Central Asian railroad. Nikolay Skorokhod."

The trains return to Ussuriysk tired, like horses after a long day's work. The depot even has an official term "repair stable." Here they are "returned to health," repaired, and all components are checked from the wheels to the most complicated power and refrigeration equipment. And until they are in good shape there is more concern about the health of the refrigerated cars than about the people.

The fresh winds of recovery were blowing over the plants and construction sites in the middle of the 1960's. Economic reform, experiments and social development. The new time also brought complicating circumstances: it was necessary to expand the depot a great deal, to increase production, and this meant to look for reinforcements somewhere. And where does one find them if people have become more demanding: yesterday's conditions, to which everyone had more or less adapted and become accustomed to, were no longer satisfactory. The workers were looking for enterprises with better conditions. Youth positively ran out of the depot gates.

On one day in 1965 the party committee, the trade union committee, the Komsomal committee and the depot administrators gathered in the crowded office of the depot chief, A. Z. Borovik. It was clear that they could not continue to live this way any longer and that it was necessary to think of something. Then they

decided to listen to the workers--with what were they really dissatisfied in their shops, what did people want to improve their life? "They will make so many suggestions that we will not be able to figure them out until the day we die," warned one veteran administrator. Those who were younger insisted: let us give it a try. Each worker was given a questionnaire and asked to answer the questions and put it in a special box. Then in those sections where the people were in no hurry to pour out their feelings and thoughts on paper the activists simply had sincere talks with the workers.

As a result the depot management revealed about 400 specific problems and trivial matters which had to be resolved. In the majority of cases they were daily problems and things that could be handled: it was cold--it was necessary to turn up the heat, it was dirty--it was necessary to do general cleaning more frequently, the floors were sticky--it was necessary to replace them . . . the management and the social organizations, on the basis of the simplist of these 400 issues, drew up the first five-year plan for social development and . . . fulfilled it in two years. And the people tried to help themselves. For example, I will tell the story about the floors in the production section.

They were wooden, but try to imagine: the floors, black from layers of soot, gas and oil accumulated over many years, were revolting and gave the entire shop an untidy, neglected appearance. In response to the friendly complaints of the workers, the engineers calculated that in order to replace the floors with mosaic concrete slabs the repair brigade would need more than 3 months, and the section would have to be shut down for all this time. But if everyone attacked those terrible floors and worked 24 hours a day on a 3-shift schedule with previously prepared materials, it was theoretically possible to complete the job in only 72 hours. At a general meeting the collective voted in favor of this decision. At the same meeting they found people experienced in earth-moving work, masons and slab layers, and they created brigades. They scheduled every hour of the sequence of operations right down to the minute and completed the floor in 56 hours!

Concern for Health is Advantageous

Gradually the depot began to experience the fervor of friendly work to renew its own life. But it was still a long way from having its own courtyards and tourist base.

"This is in principle an impossible thing for a small enterprise: to have a courtyard with a swimming pool if you do not know what you are doing in the shop,"--this is the way A. Z. Borovik formulated the situation, recalling the depot's history year after year. The idea that everything in life is interconnected is correct with respect to various aspects of the plant's activity as well. With their first plan for social development, they brought comfort and cleanliness to the depot. But is this actually a social issue or is it still an economic one?

We have come to the cornerstone of the depot's policy: for the management to be concerned about the people has become . . . advantageous. They constructed elegant floors, heated the shops, installed air conditioners, piped in soft music--and the people were happier, the work went more easily, and this meant

that it was more productive and better. The aquarium and the colorful panneaux --what are these for? One can say that they are for beauty. But one can explain also that they are for removing nervous tension. Flowers? In addition to pleasing the eye, they purify the air and absorb noise. The head physician, V. I. Samsonova, has under glass on her desk, as she joked, a "list of bureaucrats" --those who have not managed to find time to spend on preventive therapy. It is profitable to be healthy. With time, as a result of a reduction of sick leave, it is possible to pay for your entire complex. We are protecting, as it were, the main state property--the working man.

The head physician sighed: "But perhaps it is not worthwhile to see the monetary income for the industry that lies behind all the good that has been done for the people?" Perhaps it is not worthwhile. But when going through these good deeds themselves, I once again turned my attention to the "income" aspect. The depot is in charge of the nearby secondary school: it has created an automotive class there, opened up training shops, organized sections for school children at its own sports center, and even looked for an opportunity to reward the best students with a trip to Belorussia. And many graduates take their diplomas to the depot's training combine, since from the very first classes they have been accustomed to calling the enterprise nothing but "ours." Incidentally, in the microrayon there is not a single adolescent who has been arrested by the police--the adolescents do not have time to hang out on the streets.

In recent years many workers have acquired private automobiles and the depot has not been slow in constructing parking facilities and has assigned a guard. A good thing? This is what our discussion is about. If one were to calculate the amount of time that is saved as a result of this, the owners of the vehicles can now work calmly in their jobs, without jumping up every hour under any pretext to look out the window or onto the street: is their Zhiguli there, are the wheels and mirrors all in one piece?

And what is the final advantage for the depot from rapidly developing concern for its workers? The economic indicators have become stronger. Here are the official figures: during the past two five-year plans labor productivity has increased by 37 percent, idle time of the cars during repair has decreased by 27 percent, the production costs of products have dropped by 33 percent, and profit has increased 3.8-fold. The proportion of manual labor has been cut in half. The figures show the quality. While in 1970 42 percent of the cars were released with the first application, now 96 percent are. Labor turnover is 9 percent--the lowest in the Far East.

To whom is it necessary to prove that real concern for the workers is advantageous to the administration? Am I not forcing an open door: advantageous or disadvantageous, is this really the main thing? Some people could say that it is wrong even to raise the question, and they would be right. For what is the situation we have actually encountered: far from everyone approves of the plans that are being carried out in the Ussuriysk refrigerated car depot. As one party worker who came here from another railroad enterprise expressed it in a disturbed way: "We would never allow ourselves anything like this. It is necessary to temper them, and not let everyone do as he wishes in cozy circumstances!" "I know these refrigerated car workers," said another one, "they are cunning, they are shifty, and this is the way they try to be."

So what, this means that they are seeking the best in life! But I am speaking about something else. Life is life: everything new and unusual inevitably encounters someone's opposition and disapproval. Speaking with the party, trade union and Komsomal activists of the depot, I saw that they have enough courage to cheerfully look opposition in the eye, like a growing pain: without struggle there is no victory.

Why Is The Initiator Unwelcome?

This is still in some ways an unenviable position: let us start with the first thing. It is a thing of the past, but so many rumors of all kinds spread throughout the city and its environs when the depot decided to construct its own palace of sports and health.

"All that is put on for show, for foreigners," other people have gossiped. It is a sad thing, but the word "sauna" in the minds of many managers has been associated with nothing other than drunken bouts of respected officials somewhere in a dacha that is hidden from indiscreet gazes. "They are building swimming pools when people have nowhere to live," others have grumbled.

As a logical consequence, letters and "signals" have appeared. A party meeting was conducted. One comrade (one of the former managers of the depot) for 45 minutes conscientiously demonstrated from the tribune that the creation of comfort, the construction of a new dining room and store, and the more so a sports complex through their own efforts is caprice, squandering of public money, inefficient work.

The rumors may not live long: well, a week, a month, a year at most, and then, in any case, everything will become clear and laughable to everyone. What hidden springs cause some people to take an irritable attitude toward clearly good innovations? I think that one of the explanations lies in the fact that the collective that has "pulled itself up by its bootstraps" and learned to manage is considerably more efficient than its neighbors, and creates certain uncomfortable situations. First of all for those who are working in the neighborhood at similar average-sized enterprises, and especially the managers who have lost or have never had a taste for initiative. A well-known economist who is now the chief of the labor division of the USSR Gosplan, N. Rogovskiy, writing once on the pages of EKO, showed the "special signs" of such a manager: "He is unusually efficient, conscientious and disciplined--you know, the kind of bureaucrat from the department of unresolved problems--and with all this he has never taken an independent step."

Naturally, it is more convenient for such bureaucrats when everything around them is "average," when it is possible to respond confidently to any specific perplexity about mismanagement in their shop by referring to global considerations of shortages of supply and lack of planning coordination. The Ussuriysk refrigerator car depot by virtue of the very fact of its activity has pointed up some people's inadequacies.

And the "signals" have continued. The chief of the Far Eastern Railroad at that time, A. Andreyev, went to Ussuriysk: "What kind of clever scheme are they really trying to pull off there?!" He walked through the autumn mud up to a pit. He asked the depot chief threateningly:

"How much will this swimming pool cost you?"

"We need water to fight fires anyway," the latter sadly began to justify himself, "and there have not been any particular expenditures yet, the pit is just . . . we expect to spend 1,200 . . ."

"Take a note," Andreyev turned to his assistant, "a costly undertaking. Allot it to them from the road fund . . . well how much, really?"

"Sixty! We need 60,000," the depot chief shouted joyfully: they finally understood him.

Then, when they had already managed to build the swimming pool, a commission arrived to sort out a very big complaint to the party kraykom. Again someone had suspicions about the swimming pool and the sauna. "Here are the accounting books," the physicians calmly explained, "and during the past 7 months 1,950 children and 603 adults have come to the swimming pool. More than a hundred workers have used the sauna during this time . . ."

"You have illegally constructed a recreation base in Lazurnaya Bay," the commission rustled its letters of accusation. The depot's bookkeeper submissively took out the materials concerning the plan for financial investments and the agreement for shared participation. Every cloud has a silver lining. It is largely because of the complaints and rumors that not everything is on the up and up at the depot that the Maritime krayispolkom and the CPSU kraykom became familiar with all the details of their plans and accomplishments and unanimously came to the following conclusion: The innovators should be supported. Since that time they have become accustomed to another kind of guest: participants in various seminars and courses for increasing skills come here. Kray workers send managers of the rayon level here and insist: Look, absorb this--there is a good deal that can be done not only for the world famous Soviet giants, but for any of you, and no one will slap your hands for this!

But some directors become indignant: Are we worse or something? The seeds are sprouting. In the Sakhalin division of the Far Eastern Railroad, for example, the same kind of palace of sports is now being added to the swimming pool. Many depots have now begun to construct housing by the economic method.

External and Internal Cooperation

Well anyway: how do they manage to do this? Any serious business undertaking is based on financing, materials and labor force.

Where do the people with initiative at this depot find the money for their social program?

"What do you mean, where," the depot chief shrugs his shoulders, "from the fund for social and cultural measures."

There was something a little bit wrong here. Not very much money is allotted for cultural and domestic construction for the entire railroad. Certain subdivisions do not receive their "share" from year to year because of various

reasons. When the Ussuriysk depot overexpends its share, this is regarded only with approval: they take over the unused finances of some other section--so the money will not go to waste.

But what will happen if some fine year all of them suddenly fulfill their assignments for social construction? Will our advanced depot then end up among those that squander money and become bankrupt? But such a situation so far threatens neither the Ministry of Railways as a whole nor its enterprises: from year to year funds for nonproduction construction go unassimilated.

Another curious aspect of economic life can be seen in Ussuriysk. Very frequently the managers know by heart the decrees that "prohibit" things and willingly accept them as insurmountable barriers. But in the Ussuriysk depot they study each document especially carefully and search out the paragraphs that "permit" things. Incidentally, during the past decade many government decisions have been made that provide a skillful administrator with freedom to maneuver within the framework of the law. In a word, in our time one can find money for a good cause. Finding materials and technical equipment is more complicated.

How are they acquired? An experienced depot "go getter," who did not want his name in the press, answered this question: "Necessity is the mother of invention. Obtaining tiles and pipes for the preventive medicine facility is a story of Scheherazade: A Thousand and One Nights!" Once he even made his way into a house of recreation where some honored supply workers were spending their vacation, and over cards and light conversation, having softened up the holders of funds, he managed to bring the conversation over around to the subject of assistance. I do not want them to see the depot workers as the partisan who is audaciously taking a carload of brick away from those who are supposed to receive it. We are speaking about surpluses--supplies, which are lying around all the time in cozy corners of warehouses and bases. While I was there the supply division conducted complicated negotiations about new rings for the electric stoves in the dining room.

"That is a terrible, unbelievable problem!" they admitted and made telephone orders to neighboring cities--Spassk, Arsen'yev and Artem, adding: "Everything exists in nature, but to find it one must look for it!"

At one time they acquired a hoist with the help of their deputy to the Supreme Soviet, a responsible Moscow worker. He visited the depot and, with impassioned speech said: "If we do not help you, whom are we to help!"

But the main method is interbusiness cooperation. The depot made for the city combine of industrial enterprises concrete mixers and vibration areas which produce one-third more output than the old ones. For the city brick plant it manufactured a fire calorifier which made it possible to produce considerably more brick as well. "If something breaks at the combine of industrial enterprises of Pavel Stepanovich Khristoforov, we may shut down half the depot, but we give it to him," the party committee told me. It is understandable that after this they will give the depot more brick and concrete than they will give to others. But what is unfair here? Such mutual advantage corresponds completely to the provisions concerning the socialist enterprise.

Well, all right, financing, materials and mechanisms--one can manage to get hold of these things. But where does one obtain labor force--the major shortage today? In the depot's local committee I was given the "Provisions for the Construction and Distribution of Residential Workers of the Ussuriysk Refrigerated Car Depot." The first point without embellishment pointed to the situation: "Because of the critical need for housing for the depot's workers and the impossibility of enlisting construction organizations, housing in the depot is constructed through the efforts of the members of the collective themselves, on a voluntary basis."

In a year the depot received three apartments. The waiting list included more than 300 people. So are they supposed to wait until the last receive housing 100 years from now? Even for those in the middle of the list the prospects are not gratifying. But these people on the list began to gather volunteers for construction. They learn construction specialities at the depot's expense. The conditions are not easy: the volunteer must put in work at the construction site that is equal to the norm necessary to the construction of 3 good apartments --for himself and 2 comrades.

In other words, it has become a realistic possibility for each worker of the voluntary construction group to obtain an apartment within 3 years. The construction group has already built 4 multi-apartment buildings, a store and at the same time all those social facilities which can be seen today. Now members of the group are assembling a hothouse and building a stadium and a 90-apartment building. Moreover, each worker of the depot has a socialist commitment: for 3 days off during the year and absences he must work on building up the area, and the construction group makes sure that these 9,000 man-days of free labor are not wasted--they flow as a vital river into the overall program.

And One's Own Electric Energy?

In these remarks I have deliberately not emphasized whose personal initiative and personal contribution have gone for solving the social problems.

"There is not a single person in the depot who does not participate in this. Everyone has pounded his nail and laid his brick," said Dmitriy Nikolayevich Lazenko, an instructor at the training combine. He himself was the public manager of construction of the preventive medicine facility.

"Who would want to remain on the outside if he is concerned about himself?" confirmed a depot veteran, the fitter Vasiliy Isakovich Shcherbanyuk. He has two sons in the depot--one is a diesel operator and the other a mechanic, and his wife is an expediter. As an entire family they have worked the number of hours required by the norm during their free time. The elder Shcherbanyuks will move into the next building, and the apartment they leave in the old building will be occupied by their son and his bride.

Of course, personnel decide everything. And a good deal in our story depends on the fraternal organizational work of the party committee, the local committee, the trade union committee and the Komsomal committee, and on the chief of the depot, an honored efficiency expert of the RSFSR, A. Z. Borovik. They have

clearly understood that the worker has missed the management approach: inactivity and laziness appear in places where there is no master. The depot has managed to create an efficient and, I would say, an optimistic atmosphere.

". . . a businesslike attitude, the ability to forsee the future, energy and persistance, and socialist enterprisingness are more important than ever before"--this requirement was expressed by the 26th Party Congress. On the very edge of the country, in the remote Maritime city of Ussuriysk, in a railroad enterprise that appears to be average from all signs, enterprising people, in the best sense of the word, the socialist sense, are searching for and achieving clearly atypical results. You could not call their conditions easy. The circumstances of life are severe: the depot is expanding, and without additional workers they will not be able to meet the five-year plan. What with the shortage of personnel in the Far East they might fall into despair.

"Our depot five-year plan?" the secretary of the party committee, V. N. Babenko, repeated my question. "We expect a great deal of it!"

He began to fold his hands: a house of culture would be constructed, a children's combine, more than 200 people would move into apartments, the stadium would be completed--they have already purchased rubber and bitumen strips. The hothouse would be put into operation and the hog farm. "This is the only way it is possible to retain personnel, and enlist new personnel," the manager of the party organization said constantly. "You cannot bring youth to the depot by force! And also, if we can, we are going to put an electric power station into operation. The lights in the depot frequently go out . . ."

"Everything you have is your own," I said in farewell to the chief of the depot, "do you print your own money?"

He laughed.

"A joke is a joke, but in fact we are proceeding in the direction of khutor management," said A. Z. Borovik and, fatigued, looked at the mockup of an elegant bus stop (they intend to put it at the entrance to the depot). "Those are the vicissitudes of life. Everyone must do his job. I--ship fish. Someone must provide me with housing, with bus stops and busses, but they ar enot providing them. So what does one do: keep saying that there is no this there is no that and waiting? It is necessary to act today. One can shout it out everywhere that in the stores the counters are impoverished. But perhaps it is better to go and construct one's own hog farm and hothouse? A hog farm is always suitable because it will take scraps from the dining rooms. But a hothouse? When the sovkhozes give us too many cucumbers, we begin to raise flowers for our women in the hothouse. Nothing goes in vain, the more so since it has been created by our own hands!"



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HALLMARKS OF GOOD MANAGEMENT INCLUDE REGULAR, RELIABLE, RELEVANT INFORMATION, FREQUENT CONSULTATIONS, ADEQUATE AUTHORITY DELEGATION

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/Article by G. A. Kulagin: "Papers One Cannot Do Without" Continuation; beginning in EKO, No 1, 1983/

/Text/ This will perhaps sound paradoxical, but in our age, when everyone is complaining about the flow of paper, the only method of reducing it is to deal seriously with papers. We have in mind those useful papers without which it is simply unthinkable to manage an enterprise today, particularly to plan its operation.

Let us begin with provisions and job instructions which are mandatory for the adopted schema of the organizational structure. They are usually farmed out to the corresponding division for scientific organization of labor or division for work safety and wages and are drawn up according to existing traditions: one has the right, one is obligated, from whom and what kind of information one receives, to whom and what kind of information one submits.

It would be useful to approach the drawing up of these documents in another way: to begin with a study and analysis of existing information flows and "technology" for preparing decisions. This is difficult and painstaking work, and requires the enlistment of specialists in system analysis, but the time and energy spent on it are fully justified. During the process of this work one inevitably finds superfluous ties and information "loops," document turnover is processed, unnecessary forms are abolished, and a real basis is created for the development and introduction of automated control systems.

A second most important category of paper, whose importance is increasing especially now, with the changeover to new principles of planning, are documents that contain data about the production capacities of the enterprise. The initial sources for obtaining these data are the construction blueprints for the planning of shops and inventory information about equipment. The secondary documents are the passport of the enterprise and the calculations of capacity on the established form. The first duty of the directors is to clearly establish which division is responsible for what--the technical, mechanic's, architect's or other division--and demand that these documents are always "up to date."

A third kind of important "internal" information are labor normatives. They are developed for each item that is included in the production program and are based on existing technological processes and working norms. For new items labor normatives are created by the method of equalization. They must also be differentiated for the various shops, sections and groups of equipment, occupations and categories of workers. Because of the improvement of technology and the periodic revision of the norms, it is necessary to put them in order at least once or twice a year. Since various services participate in the work for creating and maintaining labor normatives, it is extremely important that their responsibility be clearly delimited and that their activity in this area does not escape the attention of the directors.

Everything that has been discussed up to this point is generally known. But now it is worthwhile to discuss those documents which official methods frequently ignore, but without which it is impossible to have real planning of production and above all to reveal the true need for labor force and equipment.

Forty years of experience in plant work has led me to the profound conviction that the main reason for rush work in our shops or, to put it more broadly, the main reasons for disproportions and imbalances in the national economy is the idealized approach to planning calculations which have been legitimized by existing methods and instructions.

Every plant worker is well aware, for example, that in the production shops, in addition to operations envisioned by the technology, it is necessary to constantly perform additional work related to eliminating defects, manufacturing parts to replace rejected ones, reworking and completing the work on parts, which are inevitable during the assimilation of new products; related to "finishing" materials that do not meet specifications when they arrive; rendering services to repair workers, the city management, the patronage kolkhoze, and so forth.

Bookkeeping figures show that in the majority of machine building enterprises such work reaches 15-18 percent of the "pure" technological time. To ignore this work in planning calculations means to include "rush work" and bottlenecks in the plan ahead of time. Yet existing instructions do not make it possible to account fully for these inevitable jobs when calculating the plan. In my opinion, one of the reasons for the stable work of the VAZ consists in that, as distinct from other machine building enterprises, its managers from the very beginning have placed all planning calculations on a realistic basis, that is, taking into account rejected work and other expenditures of nontechnological time, and they have managed to demonstrate the need to deviate from many existing rules.

We are certainly not suggesting that we reconcile ourselves to high "side" expenditures of production capacities, but we must know what they are, if only to fight against them. Therefore the director should be concerned about precise accouting for these expenditures, which is not at all difficult if only on the basis of payment bookkeeping documents.

It would also be very useful to account for revision of the norms for each shop and section, which would be realistically and profoundly differentiated for each occupation. If one calculates the need for labor force based on the fact that in the shop the average revision of the norms amounts to 120 percent, but one does not take into account that polishers fulfill the norms by 140 percent and lathe operators hardly reach 100 percent, we are doomed to an excess of polishers and a shortage of lathe operators.

The question of the influence of so-called "hidden" overtime work on the accounting for revised norms is extremely delicate. It is no secret that many enterprises far from fully reflect in official accounts the actual number of overtime hours, thus violating the law, and pay for them with "bonuses for especially important assignments." But by doing this we are driving the disease deeper, artificially increasing the actual hourly productivity that is achieved and, in our planning calculations relying on a deliberately increased "percentage of revision of the norms," we are failing to acquire the necessary number of workers. "No person should work more than 120 hours of overtime during a year," says the law . . . "alas, hundreds of thousands of people work more than 120 hours in overtime," says life. Instead of openly looking at this contradiction that has existed for many years and resolving it, we close our eyes to it and pretend that everything is in order.

This is the second, but no less important reason for rush work which imbedded in the plan. This is a complicated issue: being a director I once agreed with the trade union committee to have a complete and honest accounting of overtime work, but I admit that neither the obkom nor I maintained this position for a long time. Here is something for the State Committee for Labor and Wages and the AUCCTU to think seriously about. So far one can recommend that this accounting be done if only unofficially, for oneself, in order to know where you are and what is the actual percentage of time worked in excess of the established norms at the enterprise.

For correct planning it is also necessary to have reliable information about absences from work for entire days. Practice shows that regular and additional vacations, taken at "one's own expense," illness, the performance of public duties, sporting events and, finally, truancy reduce the amount of calendar time even in a good plant by 14-21 percent, which is considerably more than can be included in the calculations. Incidentally, strange as it may seem, truancy occupies last place on this list. Again: we are not speaking about reconciling ourselves to illnesses and unauthorized leaves. But we must know the evil in order to fight against it.

And the habit of closing our eyes to the actual state of affairs in the process of planning then entails an unpleasant alternative: either underfulfillment of the plan or shock work, violation of labor legislation and a constantly growing quantity of overtime work and "working on days off."

To this list of internal information necessary for intelligence planning and competent management of the enterprise one must add a stage-by-stage schedule of the development and assimilation of new products, approved technological cycles for the leading items, and the time periods and groups in which they are put into production.

And, finally, the directors must have a reliable account of personnel in the cross-sections of shops and occupations. Here it is not enough to have a statistical picture as of some date: it is important for the personnel workers, on the basis of statistics and other sources, to give a dynamic prognosis of the movement of personnel for at least a year in advance.

One must know how many workers will go on pension, into the Army and into school during the planned year, how many will leave the enterprise at their own request, and how many will be fired because of violations of discipline. On the other hand it is necessary to determine how many people and with what specialties will come to the enterprise as graduates of vocational and technical schools, and through organized recruitment and free hiring. It is also necessary to take into account seasonal fluctuations in the number of personnel because of vacations in order to correctly determine the annual load for the various quarters, and also to enlist temporary labor force ahead of time, for example, students for the summer period.

Of course, the aforementioned information can and should be augmented by other information based on the specific features of the enterprise. But it seems to us that it is precisely the internal information we have mentioned that is the basis and each enterprise should have all of it, regardless of its profile, and therefore we shall briefly list it once again:

a schema for the organizational structure and provisions to augment it concerning divisions and shops and job instructions;

detailed information about production areas and equipment, and the enterprise's passport;

labor normatives;

figures about expenditures of working time on work that is not envisioned by labor normatives;

information about full-day absences;

information about the real overworking of norms for each occupation in the cross-section of the shop;

schedules for preparation of production, information about technological cycles, groups for startup, and so forth;

information about personnel and prognosis of their movement during the planned period.

If the enterprise has an information computer center, all this information should be transferred to punch cards, tapes or discs, which must be kept constantly ready. Electronic computers make it possible to sharply accelerate the production of all necessary planning calculations and achieve a degree of reliability and detail which is quite impossible with "manual" planning. But still one must always keep in mind that electronic computers do not allow the slightest deviations from the truth and can rapidly be transformed into a costly fashionable toy if the information fed into them does not correspond to reality.

In addition to internal information, the board of directors should also have a minimum of external information. The most important kind are control figures for the volume and list of products obtained from the ministry which, in turn, is guided by orders from the Gossnab and assignments of the Gosplan. But the managers of the enterprise must understand that the higher levels are far from omniscient and omnipotent and cannot always have such a good idea of the needs for specific products as the enterprise itself which produces them does. Every enterprise is obligated, through its designers, installers and sales services, to have its own information about the real demand for its items. In the event that this information differs significantly from the assignment that is received, it is necessary to be able to rely on "direct ties" with clients to prove and defend its position in order not to let down either itself or the state.

Now, when the five-year plan is becoming the basic one, it is extremely important to coordinate annual assignments with five-year assignments and, the main thing, the production plan with the plan for capital investments. The higher agency has the right when submitting the five-year assignment to count not only on the available capacities of the enterprise, but also on their increase.

It would seem that the process of planning could thus follow two natural paths. Either they say to you: "Here is an increased program and you calculate and prove how much you need for capital investments in order to gain the necessary capacities." or, conversely: "Here is your limit of capital investments, and you calculate and show how much you can increase the output of products with this limit."

Unfortunately, this elementary rule of scientific or, more precisely, simply intelligent planning is violated all the time. Therefore the primary duty of the manager of an enterprise, relying on the rights granted to him by the law, is to protect the interests of the collective, but in essence they are also state interests, and to demand full coordination of production plans with plans for the development of the enterprise.

I can give this practical advice: in all forms of the draft of the five-year plan that are submitted for approval it is necessary to make a note to the effect that the rates of increase in output envisioned by the draft are effective only with certain amounts of allocations for the development of capacities, the acquisition of equipment and capital construction. This usually evokes dissatisfaction among workers of the ministry . . . "Why destroy the form with notes when there is an individual form for capital construction?"--but it is a moral gurantee, although a weak one, of coordination of the production plan with the plan for development.

It is also important for the plan envisioned in the control figure for "volume" to concide with the plan calculated in "money" (or in normative net output) for assortment. Expressed in the language of plant economists, "empty air" in the plan is no less harmful than "overloading." In the former case the plant risks either losing workers--the element of productive forces that is in shortest supply today--or damaging its portfolio with random orders of a different profile, which are difficult to get rid of later. The latter case inevitably involves failures to fulfill agreements, sanctions, loss of reputation and incentive funds and, in the final analysis, harm to state interests.

When internal and external data necessary for drawing up the plan are received and put in the proper order, the first thing one must do is superimpose them on one another.

Recently people have been complaining about planning "from what has been achieved." But the level that has been reached has always been, still is and will be that point from which the process of real planning begins. One must distinguish the achieved level as a basis for calculating and development necessary measures from the pernicious habit of arbitrarily adding to this level for the next period, without supporting it either with more money or with new technology. The second thing is actually harmful and the first is simply necessary. Any sailor, before setting his course for a particular point and setting sale, must first determine where he is. This is the initial point of any reasonable planning. But the process itself of developing the draft of the plan at the enterprise should be discussed separately.

Order No 1

A capitalist manager usually begins planning the activity of his firm by studying the market and drawing up a sales plan.

We have a somewhat different situation: a socialist planned economy, as a rule, provides for the sale of all products that are produced. The laws of socialism require maximum utilization of the technical equipment and labor resources entrusted to an enterprise, which is concretely expressed in the development and implementation of a taut plan. In the majority of cases a taut plan means an increase in the volumes of products that are produced as compared to the level that has already been reached. Much less frequently, when the demand for the product produced by the enterprise is limited, the accent when drawing up the plan is moved to reducing the number of workers, economizing on raw material that is in short supply or radically improving product quality.

With all the diversity of specific situations, the essence of a taut plan is to increase production efficiency either as a result of increasing the quantity of products with the same resources, or as a result of reducing the resources used with the same quantity of products produced, or as a result of combining both of the above. But in either case, of all the sections of the technical and industrial financial plan, the central one and the main one is the production plan.

Let us consider the policy for drawing up the annual plan since it requires the most concrete approach. Moreover drawing up five-year plans is analogous to drawing up annual plans, taking into account the need to coordinate them strictly with the plan for development and capital investments.

Usually an enterprise (association) submits to the central agencies the draft of the production plan for the forthcoming year at the beginning of the second quarter of the preceding year. Consequently, its development in the collective must be completed by the end of March. By this time it is necessary to completely clarify all initial information of an internal nature, to obtain control figures and to make the necessary calculations either by hand or with the help of the information computer center. Here it is necessary to distribute the annual

program among the quarters and among the shops, to reveal the need for area, equipment and labor force, and to compare them with the existing amounts.

The most reasonable criteria for optimization are a uniform load of production capacities and a "minimization" of bottlenecks. It is realistic to carry out this task with computer equipment alone only for enterprises with a stable and strictly limited list of products and the assignment of particular operations for particular equipment. These conditions are met by enterprises with continuous or discrete, but primarily mass production, for example, metallurgical and chemical combines, textile factories and automotive and tractor plants. As for enterprises with unit small-series production, I have never had occasion to see or read that the optimization of the plan is fully automated with electronic computers. The fact is that here the very process of production is inadequately determined: the great changeability of technology, the large list of parts, and the impossibility of permanently assigning operations to working positions create difficulties with which automated control systems are still not able to cope. In this respect the situation is the same both here and abroad. In these cases it is necessary to be satisfied with the machine-manual method of optimization: the program is initially distributed among the shops and the quarters by experienced planners and then the plan is processed by the information computer center and all of the inconsistencies with respect to resources are revealed. The results of the calculation are considered, after which the distribution of the program is again adjusted manually, the adjusted draft of the plan is again processed on an electronic computer, and this procedure is repeated several times until a variant is achieved which provides for uniform loading of people and equipment and a minimum of bottlenecks.

This somewhat reduces the value of using electronic computers: with manual calculation it is necessary to use averaged, generalized indicators and therefore one cannot fully reveal the shortage of one resource or another. calculations on electronic computers make it possible to determine precisely the need for equipment and labor force for each shop and section and, consequently, make it possible to substantiate the redistribution of assignments and resources and to earmark quite concrete measures for providing the shops with additional equipment and people as well as measures for increasing labor productivity and the handling capacity of the necessary sections.

The procedure itself of repeatedly calculating the plan on electronic computers does not require a great deal of time and labor if the initial normative base is in order and the algorhithms and programs for these calculations have been well developed.

The draft of the plan prepared by the planning division and the information computer center should initially be submitted for the consideration of a small group of managers: the director and his deputies, the secretary of the party committee and the chairman of the trade union committee and only then should it be submitted for broad consideration by the shops and services. Usually even when it is considered in this small group it becomes necessary to adjust the draft of the plan that has been presented and to earmark fundamental measures for the mobilization of resources for its fulfillment.

It is expedient to carry out the second stage of the plan 7-10 days after the first stage in order to make it possible for the planning staff and the information computer center to make the necesssary changes in the draft of the plan and promptly reproduce and distribute the documentation, including a list of already adopted organizational and technical measures, to all chiefs of services and shops. It is useful for the director to open a large conference with a "program speech" in which he presents the basic ideas of the plan and enumerates the limitations and difficulties and also the already earmarked measures for overcoming them.

It is difficult to recommend any firm procedure for this consideration--this depends on the specific conditions of the enterprise. One can only advise that 3 simple rules be observed. In the first place, do not hurry: it is certainly not a sin to devote several hours to the annual plan. A well "verified" plan, as one director I know expressed it, is half of the success of the future work. In the second place, following an ancient custom, first it is necessary to hear the opinion of juniors who are directly involved in the work--the chiefs of shops and divisions--and then allow the head specialists to have their say, and only after that should the discussion be concluded with speeches by the deputy directors.

And, finally, in the third place: none of the participants in the conference should be allowed to remain silent--each should be obligated to make a clear statement about the acceptability of the jobs earmarked for him or make specific corrections and requests. Of course one cannot count on complete unanimity. Therefore the director must immediately, during the course of the discussion or in his concluding speech, give a clearcut evaluation of each request and announce which are to be accepted and which are to be rejected and why.

All decisions that are adopted must be registered.

After this the planning division in conjunction with the information computer center develops the final variant of the draft of the plan and submits it for the director's signature so that it can then be sent to the central agency for approval.

Along with the draft of the plan an order from the director approves a plan of measures to support this draft: this can include the time periods for the designers to develop blueprints, the assignments for technologists to revise technologies and reduce labor-intensiveness, for capital planners to acquire new equipment, for personnel workers to augment personnel, and so forth. These measures will serve as a basis for the plan for organizational and technical measures and, essentially, all other sections of the technical and industrial financial plan. And from the first day after their approval they become an object of daily control on the part of the functional deputy directors.

It is no secret that very frequently the plans for organizational and technical measures, new technical equipment, improvement of technology and so forth are drawn up out of general considerations or as the sum of the desires of the shops and divisions. They also sometimes include those measures which are demanded by the more energetic and also simply more outspoken chiefs, and limited resources are expended for things that are not at all primarily necessary. All this work, as has already been said, ends at the end of March, and at the beginning of April the draft of the plan should be submitted to the ministry.

Usually during the second and third quarters painstaking work is done to settle the plan in the central institutions. In well organized ministries at the end of the fourth quarter the enterprise receives the finally approved plan for the following year. Since it is always to some extent different from the draft that was submitted and by this time it is already clear how the plan for the current year will be fulfilled, the final plan is again discussed by the board of directors and in a large conference, and only after this does the director issue an order to put it into effect. He should also publish as an appendix a list of organizational and technical measures which have not been fulfilled during the current year and also those measures the need for which have arisen during the final working out of the approved plan. Let us remember that in March-April of the forthcoming year this list is again augmented with measures directed toward preparing the enterprise for the next year of the five-year plan.

This order, issued on the eve of the new year, should be called Order No 1. In essence it is a document which determines the major tasks of each subdivision of the collective for the forthcoming year.

A question can arise: Is it expedient to discuss the plan again in December, when it has already been finally approved? This is necessary because the enterprise still has the authority to distribute the load among the shops, to determine the time periods for the fulfillment of individual orders and to break the plan down by quarters (unfortunately, in spite of the "Provisions for the Socialist Enterprise," many ministries try to usurp these rights which is certainly not advantageous to the cause). Moreover, it is precisely now, in December-January, that the time comes for responsible work on the part of chiefs of shops and divisions for bringing the plan to the sections, masters, brigades and individual workers, and this is a time for adopting socialist commitments and developing competition.

A somewhat simplified, but generally similar procedure can be recommended for developing quarterly plans as well.

Is such a large expenditure of time and energy justified? Is it necessary, say, for the head power engineer or the chief of the division for technical training to sit for hours in conferences if they have agreed upon their tasks beforehand and during the course of the conferences sometimes not a single question is addressed to them and all of the controversy is about the time periods for the release of design documentation or the startup of new cupola furnishes in the smelting shop?

There can be only one answer to these questions--it is necessary.

In the first place, the board of directors, even if it were Solomon, cannot itself foresee and evaluate all, sometimes unexpected, cases and circumstances that influence the course of production--here every participant can and should make his contribution. In the second place, it is known that in any complicated system, the elements try to occupy a position that is most convenient for themselves, and their interrelations do not always indicate mutual understanding and cooperation: sometimes people are not against doing something at the expense of their neighbor. This is one of the reasons for divergence, that is, the

desire of individual shops and services to place their interests and goals above others. I do not know of another way of fighting against these negative phenomena except for patient explanation to all participants in the production process of their common task and the interconnections and interdependency of their jobs.

A collective discussion is better than any other method of bringing to the awareness and, also very important, to the heart of each worker the need to take into account the needs of his neighbor and recognize the priority of common goals over particular ones. In complicated modern production it is no longer sufficient for each soldier to know his maneuver--it is necessary for him to know the maneuver of his neighbor in the overall system. Moreover, practice confirms the correctness of the assertion: in order for information to reach its addressee there must be a certain surplus of it. For the force of the order consists not in its logic and not in the fact that this is what the person who issues it wants, but in the fact that it is understood and accepted by the worker who is to carry it out.

And the last thing: every director should remember that one of the most important of his responsibilities is to protect the interests of line personnel from excessive claims by functional services. The straight line which includes the engineer-developer--the shop chief--the master--the worker, should be clearly marked and the board of directors is obligated primarily to make sure that there are no internally contradictory conditions for the activity of these participants in the production process. Those in charge of all the rest of the functions should clearly understand their business is to serve this direct line and not to command it.

This is why, in my opinion, collective discussion and development of the plan brings inestimable advantage, in spite of the large expenditure of costly time of the managers of the services and shops.

In Order to Keep Up With Things

After the plans have been given to the workers who are to carry them out, the board of directors of the enterprise is obligated to create a system of control over their implementation and provide operational regulation of the course of production. This system must include firmly established permanent channels of direct and reverse communications and the necessary minimum of information coming into the board of directors.

It is hardly possible to recommend individual formulae for organizing this system--it must be developed with respect to the specific conditions of each enterprise. In passing I shall allow myself to express a heretical thought: all enterprises differ from one another no less than living people do. Each of them has his own body structure, character, age, pscyhology and environment. The desire of certain zealous theoreticians to create single, unified standards for administration that are suitable in all cases of the lives of all plants and factories, from my point of view, is a worthless attempt.

If in tractor production or at a plant for television sets the system of control over the course of production can be fully automated, and the information about the operation of the main conveyor and the condition of the stocks that feed it is to go to the director every hour, at a heavy machine building plant that produces unique units of machines with a lengthy production cycle it is sometimes sufficient to have information about the stockpiles, assembly and dispatch of products every 10 days. Many machine building plants have adopted and justified the practice of daily dispatcher inspections which are augmented by conferences at the level of the director every 10 days.

I note in passing that we frequently have a primitive interpretation of the concept of rhythm, condemning enterprises that produce a large part of the final product at the end of the month. But each enterprise has its own natural rhythm: for the VAZ this is 3 motor vehicles every minute, but for a shipyard, whose annual program includes only 12 ships, it would be ideal to release 1 ship on the 30th or 31st of each month.

True rhythm in the operation of another lies in uniform loading of all groups of workers throughout the day, month and year and in the lack, on the one hand, of idle time and, on the other, of overtime work. It is precisely in terms of the degree to which this ideal is approach that the director should evaluate the work of his subordinates and the higher agencies should evaluate the work of the director.

A couple of words about the role of so-called personal control locally. It seems to us that the figure of the director who begins his working day with a tour of the shops, gathering information, as it were, with his own legs and eyes, and makes decisions on the spot, calling the managers of the necessary services into the shop--this figure has become outdated and is acceptable only at very small enterprises.

The director's work place is his office and he, like every other worker, must spend a maximum amount of time in his working place, receiving the necessary information mainly from his deputies and giving the necessary instructions through them.

The appearance of the director of a large plant or association in the shop should be a relatively rare event, one which is important, purposive and extraordinary.

The director should always know ahead of time why he is going to one shop or another and what he will do there which cannot be done by others. Of course, he must come to the shop in the event of a fire, a serious accident or other emergencies. It would be useful for him to visit a facility under construction on his own initiative, to tour the shop or territory in order to inspect and advance the "culture of production" or simply to wage a battle against dirt and rubbish. He should go to the testing stand during the period of adjustment of a new machine, especially if things are not going right and it is necessary to cheer up the tortured workers--but here he should not take on the role of an aribtrator in disputes between production workers and the department of technical control or the designers.

It is of extremely great advantage to have organizational meetings between the director and the collective at conferences, meetings of the aktiv, or shop worker's meetings, especially when he himself speaks about tasks or reports to the workers about the activity of the enterprise. These speeches develop a feeling of ownership in the labor collectives, and one should spare no time or effort for them.

But his basic product--decisions--the director must work on in his own office on the basis of systematic information that regularly comes in to him and as a result of counsel with close assistants and managers of social organizations. It is no secret that the so-called "triumvirate" was long ago transformed into an unofficial "board" of the Soviet firm and all important questions involving the interests of the collective should be discussed and resolved with its help.

The information coming in to the director personally depends on the nature of the enterprise and cannot be described in formulas that are common to all. One can try to name only several rules that have been proved in practice, which should govern this information and the decisions made by the director;

the information should be systematic, regular, reliable and adequate but not excessive;

the information should be preliminarily processed, preferably by mechanized means, and put into a form that is convenient to assimilate;

the decisions made by the director for operational regulation of production should be transferred through deputies, and not directly to the workers;

not only the chain of direct workers, but all services whose interests are in one way or another involved should be informed of the decisions of the director;

in his operational work the director is guided by the principle: the minimum of intervention in current affairs of his subordinates and the maximum of demandingness for the fulfillment of tasks assigned to them. The manager does not let himself get involved in disentangling problems involving his subordinates, but the subordinates should clearly know that if they themselves cannot work them out, sooner or later the director will intervene;

the director is primarily concerned to make sure that the shops, as subdivisions that produce the final result of the work of the entire collective, are given the necessary resources--equipment, space, materials, wages, personnel, technical specifications and supplies;

if the subordinates ask for help, the director should stop the statement of a problem in the form: "I cannot do it, release me from the assignment," by countering it with the question: "What do you need and from whom in order to fulfill the assignment?";

the director does not have the right to delay in solving important problems which, according to the provisions, no one but he has the right to solve.

Without trying to give universal formulae, I shall briefly describe the system of "dispatcher information" which has been operating well in the machine tool building association which produces complicated machines of various types in small series or individually--I have been the general director here for 10 years.

This system includes the following elements:

a daily summary of the quantity of parts issued during the past 24 hours for assembly, and also the positions that do not have enough to fulfill the monthly plan. The summary is drawn up for each model of machine that is to be produced in the given month and in the cross-section of each shop and division that participates in the assembly;

a daily summary with a cumulative total of the release of prepared billets by the smelting section--individually in terms of five and machine or conveyor smelting;

a daily summary with a cumulative total of the delivery and sales of products;

a gathering every 10 days of mutual complaints of shops and services that are related to the fulfillment of the monthly plan, and at the first conference at the center of attention are questions of supply and batching, and at the second --"covering the shortage of assemblies" by machine shops, and at the third conference--completion of the assembly and dispatch of the prepared product;

monthly conferences with the participation of representatives of social organizations of the shops and divisions, at which they sum up the results of the work in the past month and set tasks for the next month (this conference is usually convened in the first 10 days); they also consider the situation regarding the movement of personnel and discipline and hear announcements related to the current life of the collective and sociopolitical campaigns;

periodic reports from the head engineer concerning the course of design developments, preparation of production and assimilation of items according to the plan for new technical equipment;

periodic conferences regarding the course of construction and reconstruction, whose frequency is determined by the volume and condition of the work;

monthly summaries of the movement of labor force in all the main shops and occupations;

daily, with a cumulative total, summaries of the consumption of electric power in each shop.

One can confidently recommend that any director devote special attention to the last two summaries even though at first they may not pertain directly to operational administration of the enterprise.

I am always bothered when some enterprise which is planned on the basis of value indicators is praised because it has increased the output of products and increased labor productivity with a reduction of the number of workers.

This is acceptable only in places where there are clear physical indicators. Is it really possible to speak seriously about increasing shift work, increasing output-capital ratio and increasing production efficiency as a whole if from year to year a machine building plant loses machine tool operators, smelters and other production workers? In our time when the shortage of personnel is becoming worse and worse it is impossible to make up for these losses and they are inadmissible. One should not forget another thing: at the majority of machine building plants and associations the ratio between the number of production workers, on the one hand, and auxiliary workers, employees and engineers, on the other, is approximately the same. The number of workers in the second half of the collective, within certain limits, does not depend on the change in the number of production workers. Therefore losing 1 percent of the production workers reduces the real return and labor productivity of the entire collective by 1 percent as well, while a reduction of 1 percent of the auxiliary workers and engineering and technical personnel, conversely, practically does not affect the volume of output of products, but improves the indicator of labor productivity of the entire collective by a minimum of .5 percent.

This is why one of the most important tasks of the modern director is to carefully make sure that the entire contingent of production workers is retained and severely punish those supervisors who lose workers. Any reduction in the number of industrial personnel, under whatever noble pretext, is permissible only if at the same time there is a reduction of auxiliary workers, employees and engineering and technical personnel, but in no case should there be a reduction in the main production workers. A reduction of the latter category is a dangerous and harmful game.

In this respect it is quite useful to have summaries of the consumption of energy. Not to mention the fact that information about fluctuations in daily expenditures of it throughout the week and month give the director a precise and general picture of the actual rhythm and intrashift losses and make it possible to fight against a decline in the rate of work at the end of the work week and an increase at the beginning--these savings in the quarterly and annual cross-sections give a picture that approaches the truth regarding the increase in production and the intensiveness of the utilization of the capacities entrusted to the enterprise. In fact, the consumption of energy increases in proportion to the increase in shift work and the actual loading of the machine tool stocks, it increases with the startup of more powerful and modern equipment, and it increases as manual labor is mechanized and therefore it is a kind of synthetic indicator, indirect of course, of the growth of the production volumes.

Naturally, one understands here that the efficiency factor does not decrease at least.

Here is what was produced by a comparison of the growth rates of commercial output and the consumption of electric energy for several years at one of the machine building associations: The official reported indicator of the annual increase in volumes of production ranges around 6-9 percent a year, but the consumption of electric energy increased by only about 3-4 percent. Here is something to thing about. Obviously the second indicator describes more precisely the true rates of development of this association. In any case, if only "for oneself" the efficient director should regularly check on energy consumption.

Of course one cannot do without value indicators, but their reliability depends completely on the objectivity of the prices themselves and on the discipline of price setting. Although in this article the author does not intend to deal with questions of improving planning, still I should like to note that it will be of little help here to enlarge and complicate the system of planning indicators for all of them in the final analysis depend on prices. It seems that the main problem consists in sharply increasing nondepartmental, truly state control over prices.

In conclusion I would like to remind you once again that the system of control on the part of the director over the operation of the production entrusted to him should be arranged on the basis of carefully selected information with a good deal of content, and it should be individual for each enterprise.

(Conclusion follows.)



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PROFITABILITY INDICES USED TO ALLOCATE PROFIT, SET PRICES & NET NORMATIVE OUTPUT INDICES

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/Article by Ye. G. Liberman, doctor of economic sciences, and V. P. Khaykin, candidate of economic sciences, Kharkov State University: "Profitability Can Be Calculated More Precisely and Simply"/

/Text/ A new method of calculating the profitability of industrial products has been introduced into practice--as the ratio between profit and production costs minus direct material expenditures. Until recently profitability was determined by the ratio between profit and the complete production cost of the products. But since the complete production cost of a considerable number of items of the processing industry includes a large proportion of material expenditures (more than 60 percent), when planning prices, just as when accounting for actual profitability, it turned out that the more expensive the raw material and purchased items, the higher the expenditure of fuel and energy, the more "advantageous" it was for enterprises that were operating uneconomically. The evaluation of the work of an enterprise stood in contradiction to the interests of public production as a whole.

These circumstances were the reason for introducing the indicator of net output and its normative variant. And since normatives and wholesale prices are created in a unified process, the determination of the norm of profitability both for wholesale prices and for net output normatives are now carried out in the same way--so that an increased proportion of material expenditures does not affect either the prices or the normative net output.

This goal can be reached most simply by completely excluding material expenditures from the production cost, that is, by determining the profitability of items as the ratio between profit and wages of industrial production personnel, taking into account both the direct and the indirect amount of wages for the items. This is what was done during the period of experimental testing of the method of normative net output. But when preparing for extensive introduction of the normative net output it was brought to attention that when distributing profit in proportion to only wages, enterprises with a higher technical level with relatively lower proportional expenditures of wages do not receive in the price of the items a high enough profit to cover payment for production funds or for the formation of economic incentive funds. In the same way these enterprises end up with a reduced normative net output.

Therefore a method was suggested for determining profitability in prices for products that is based on relating profit in the form of average branch normatives not to the production cost as a whole and not to the wages, but to the production cost minus direct material expenditures. This production cost includes, in addition to wages, amortization and indirect material expenditures related to service of production capital. These expenditures are more essential in terms of the proportion of increased technical supply in the production cost of the products of the enterprises, and this means that including them in the basis for calculating profitability should equalize profit in the prices of items with plants of varying degrees of technical supply.

We shall illustrate the mechanism of equalization with the simplist example (see Table 1). Let us say that a branch consists of two enterprises, each of which produces one item with a different structure of expenditures as a result of a different technical structure of production. The first enterprise (column 3) has a relatively low proportion of wages in the production cost, and for each ruble of wages there are 3 rubles' worth of processed materials (lines 1 and 2, 60:20 = 3). But the second enterprise (column 4) is less technically equipped, as a result of which it processes only 2.3 rubles' worth (70:30 = 2.33) of materials per unit of wages.

Let us say further that the overall profit for a branch amounts to 30 units (column 2, lines 76, 86 and 96) and let us see how for the various items there is a change in profit and in the price and normative output, which depend on it, when various indicators of profitability are used in the process of normative distribution of profit.

As one can see from the table (line 76), with a distribution of profit in proportion to production cost, a technically less well supplied enterprise will receive a greater proportion (16 rubles as compared to 14) since it has increased production cost because of greater material expenditures and this will influence both the prices and the normatives of net output.

To eliminate such a mixing of prices and normative net output in favor of enterprises with increased material expenditures means to eliminate the influence of the material-intensiveness of products on the distribution of profits. This is done most simply with the utilization of the indicator of profitability as the ratio between profit and wages. But, as follows from the table (line 86), the distribution of profit in proportion to wages can lead to an even greater mixing of economic indicators in favor of less mechanized enterprises. While previously the profit for an item for the former (better supplied) enterprise was 14 rubles, and for the latter--16, now it amounts to 12 and 18 rubles, respectively. There has been a similar change in other key indicators--price and normative net output (lines 8c and 8d).

In order to prevent such a redistribution of profit in favor of enterprises with a lower technical level and also to eliminate the influence of material-intensiveness, a method has been suggested for calculating profitability in proportion to the production cost minus only direct material expenditures. The necessary calculations and their results are presented on lines 9a-9d. These data show that profit is now equalized for both items and, correspondingly, for

Table 1. Mechanism of Profit Distribution, Formation of Prices and Normative Net Output With Utilization of Various Indicators of Profitability of Products, Rubles

| Indicators | Branch as a whole | Item No 1--enterprise with high technical structure | Item No 2--enterprise with low technical structure |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 1. Direct material expenditures | 130 | 60 | 70 |
| 2. Wages | 50 | 20 | 30 |
| 3. Amortization | 13 | 10 | 3 |
| 4. Other (indirect) material expenditures | 7 | 5 | 2 |
| 5. Total complete production cost | 200 | 95 | 105 |
| 6. Production cost minus direct material expenditures | 70 | 35 | 35 |
| Distribution of Profit for Various Items Proportionally: | | | |
| 7. Complete production cost | | | |
| a. profitability, % | $\frac{30 \times 100}{200} = 15$ | 15 | 15 |
| b. profit | 30 | $\frac{95 \times 15}{100} = 14$ | $\frac{105 \times 15}{100} = 16$ |
| c. price | -- | 95+14 = 34 | 105+16 = 121 |
| d. normative net output | -- | 20+14 = 34 | 30+16 = 46 |
| 8. Wages | | | |
| a. profitability, % | $\frac{30 \times 100}{50}$ 60 | 60 | 60 |
| b. profit | 30 | $\frac{20 \times 60}{100} = 12$ | $\frac{30 \times 60}{100} = 18$ |
| c. price | -- | 95+12 = 107 | 107+18 = 125 |
| d. normative net output | -- | 20+12 = 32 | 30+18 = 48 |
| 9. Production cost minus direct material expenditures | | | |
| a. profitability, % | $\frac{30 \times 100}{70}$ 43 | 43 | 43 |
| b. profit | 30 | $\frac{35 \times 43}{100} = 15$ | $\frac{35 \times 43}{100} = 15$ |
| c. price | -- | 95+15 = 110 | 105+15 = 120 |
| d. normative net output | -- | 20+15 = 35 | 30+15 = 45 |

both enterprises. The reason for this lies in the equality of the base for calculating profitability, namely the indicators of production cost minus direct material expenditures (line 9). And the latter is equalized because in the former plant the relative reduction of wages is compensated for by an equal increase in amortization and indirect material expenditures (lines 2-4).

In practice the compensating effect of increased indirect expenditures and amortization as compared to reduced proportional expenditures of wages appears frequently enough, although, of course, their ideal equalization presented in the schematic example cannot be achieved. Moreover, equalization of profit in prices still does not guarantee equalization of the normatives of net output, which are essentially influenced by the amount of wages. This is quite clear from line 9d of Table 1. Hence it is clear that with a distribution of the normative profit among items in proportion to production costs without accounting for direct material expenditures, the enterprises with a relatively lower technical level still have the opportunity to obtain certain advantages over technically advanced enterprises. But it appears, apparently, considerably less frequently.

The data presented in Table 1 illustrate how such averaged (and taken as normative) amounts as the production cost of the items minus direct material expenditures provide for redistribution of profit in favor of enterprises with a high technical structure of production. No additional profit is created as a result of introducing this purely distributional category, of course, since there are no new stimuli to increase profitability as a result of introducing into practice a new base for determining prices and normatives of net output--production cost minus direct material expenditures.

But one must admit that equalization of profit as a beginning for introducing new prices is being achieved to a certain degree, and in favor of technically advanced enterprises. But if one considers not only the beginning, but also the dynamics of the phenomena throughout the entire period of the prices, that is, at least 5 years, certain additional considerations arise.

Let us look at the new method of normative distribution of profit. In essence, it is a kind of "handicap" for equalizing economic conditions for the existance and therefore for the competition of enterprises understood in the broadest sense of the word. When the normative profit is calculated in proportion to wages these conditions in the initial period are not the same since the proportional expenditure of wages at enterprises that are technically advanced is considerably less than at plants of a lower technical rank.

But when introducing one normative or another one cannot proceed just from the effects on production in the initial, starting period. It is necessary to take into account their influence throughout the entire planning period (five-year plan) for which the normatives are calculated. Technically advanced enterprises which have a low proportion of wages in the production cost of items at the beginning of the five-year period have better conditions for the entire period for our prices are permanent for the entire five-year period. And for the entire period the technically advanced enterprises already have better conditions in the form of higher technical availability for labor, more skilled workers, qualitatively better designs of items and other consequences of the higher technical structure of production.

All these favorable initial conditions are the result of preceding capital investments and the introduction of scientific methods into technical equipment and control of production. This is a kind of rent which each enterprise with a high technical and organizational level utilizes, and it is the first "benefit" and it is a large one which is in effect from the beginning of each planning period.

Enterprises which are advanced in terms of their level of technical equipment, consequently, have already received a "handicap" from society, and they will increase production volumes sooner, reduce production costs more rapidly and thus increase profitability both as a result of the effects of the aforementioned factors and on the basis of increments to prices for improved quality of items which are manifested during their operation. Is it necessary to encourage advanced enterprises twice--both with better initial conditions and with a special method of initial price setting with the redistribution of profit in their favor?

These are precisely the considerations by which the authors were guided when they attempted to approach a determination of profitability of products not only statically, but also dynamically. Of course one had to be convinced that in practice enterprises with a higher technical level actually do advance more rapidly up the ladder of technical and economic progress.

In order to preliminarily check this hypothesis a special investigation was conducted of the dynamics of the economic indicators of a number of associations and enterprises of the electrical equipment industry during 1977-1979. The investigation embraced 49 industries that are included in the Soyuzelektrosvet, Soyuzelektroapparat and Soyuztransformator all-union industrial associations. All the associations (enterprises) in total were broken down into two groups. The first included enterprises which in the initial period of the investigation (1977) had a proportion of wages in the production cost of products minus direct material expenditures that was less than the average level (these comprise 70 percent), and the second group had higher than average. The first, technically better equipped group, included 22 associations and enterprises, and the second--27. The results of the calculations are presented in Table 2.

Table 2. Change in Economic Indicators Depending on Proportion of Wages in Production Cost Minus Direct Material Expenditures

| Indicators | Group 1 | | | Group 2 | | |
|---|---|---|---|---|---|---|
| | 1977 | 1978 | 1979 | 1977 | 1978 | 1979 |
| Rate of increase in profit, % | 100 | 112 | 129 | 100 | 105 | 117 |
| Expenditures per ruble of output, kopecks | 85.7 | 84.8 | 83.3 | 85.5 | 85.4 | 84.6 |
| Profitability of products, % | | | | | | |
| of production cost | 16.7 | 17.9 | 20.0 | 16.9 | 17.1 | 18.2 |
| of production cost minus direct material expenditures | 46.9 | 50.3 | 56.7 | 54.6 | 55.8 | 60.6 |
| of wages | 73.3 | 83.3 | 93.7 | 78.7 | 79.5 | 86.3 |

As one can see from the table, the increase in profit at associations and enterprises of the first group during one year (1978) amounted to 12 percent, and for two years (1978-1979)--29 percent as compared to 5 and 17 percent, respectively, for the second group; that is, profit in the first group annually increased 5.7 percent more rapidly than in the second group. This confirms the supposition presented above that enterprises with a higher technical structure of production and, correspondingly, an increased proportion of amortization in the production costs and reduced proportion of labor expenditures develop more rapidly and increase the volumes of production and profit more quickly. This means that if, with the method of distributing profit in proportion to wages, they were initially to receive smaller volumes of profit, subsequently, as a result of accelerated increase in the effectiveness of production, they could compensate for these losses.

Here it is important to note that accelerated growth of profit in the first group of associations and enterprises was also accompanied by accelerated reduction of production costs of products. Thus while initially, in 1977, expenditures per ruble of output amounted to 86.7 kopecks in this group, or 0.2 kopecks more than in the second group, within 2 years they drecreased by 2.4 kopecks and amounted to 83.3 kopecks, while in the second group the reduction was 1.5 kopecks less and, as a result, expenditures per ruble of output in this group in 1979 were not less, but more than in the first group, amounting to 84.6 kopecks. This means that production associations and enterprises with higher levels of mechanization and automation of production are able to provide for more rapid rates of reduction of expenditures and, as a result of this, in the final analysis they also achieve a reduction in the level of production cost and increased profitability. It is precisely because of this that the indicators of the profitability of profit calculated by the 3 methods changed correspondingly.

The average increases in profitability for the associations and enterprises of the first group were in all cases greater than those of the second group, and this difference was especially great with respect to the third indicator of profitability, that is, the ratio between profit and wages. The difference between the first group and the second amounts to 7.4 points. As a result, if in the beginning of the period under investigation all three indicators of profitability were higher for the second group, by the end of it in 2 cases out of 3 (for the first and third indicators) profitability was higher in the first group and the difference in the levels of profitability calculated as the ratio between profit and production cost without including direct material expenditures decreased to less than half and, judging from the tendency toward increase in profit that was observed, within a certain period of time it would also be eliminated.

Thus an analysis of the data makes it possible to assume that those associations and enterprises which in the initial period, because of the higher technical structure of production had a lower proportion of wages in the production costs later, because of the advantages of mechanization and automation, would enjoy favorable conditions for intensively reducing production costs and increasing profit and profitability. Hence it follows that by retaining the distribution methods based on the indicator of profitability, calculated as the ratio between profit and wages (as was the case during the period of checking the normative

net output), only in the initial period, with the establishment of prices for new products, do we somewhat worsen the relative position of associations and enterprises with a high level of mechanization and automation of production. And then the majority of them themselves, without subsidies and without the application of a special "handicap," will accelerate the growth rates of production efficiency and, on the basis of this, will provide adequate amounts of profit for themselves, thus creating conditions for compensating for the losses of the first period. These losses can also be compensated for to a certain degree by the fact that not all prices will be revised by the beginning of the five-year plan, and also through increments to prices for items with improved quality which are established depending on their efficiency in the process of operation.

But if this is the case, from the data of Table 2 one can draw an essential conclusion: there is no longer a need to utilize the indicator of profitability as the ratio between profit and production cost minus direct material expenditures. Its only advantage is no longer so necessary, and also the indicator of profitability as the ratio between profit and wages apparently makes it possible to essentially improve the functioning of the economic mechanism.

The determination of the planned prices and normatives of net output, for example, is considerably simplified. When calculating these normatives and prices, it is a fairly complex operation to extract all direct expenditures from the production cost of items since some of these expenditures are included in the calculations as part of the comprehensive item (semimanufactured products manufactured internally).

The determination of profitability on the basis of wages is economically better substantiated. This method of determining profitability will be signficant for planning and evaluating the work of labor collectives as a whole. The ratio between profit and wages is an obvious factor of profitability and the efficiency of operation. But on the basis of this ratio it is simpler to analyze and control the connection between increased labor productivity and increased average wages. Planning the wage fund through the coefficient of wages per one ruble of output (normative net output) will also rely on a clearer connection between the amount of the normative net output and the wages since now profit, as a constituent part of the normative of net output, will no longer depend on indirect material expenditures, and the latter will no longer be able to distort the amount of the normative net output and remove it, if only some part of it, from the actual labor-intensiveness. This means that relating the wage fund to the volume of output expressed in the normative net output (through the coefficient of wages per ruble of this output) will rely to a greater degree on the connection with labor-intensiveness and, consequently, will become economically more precise.

In our opinion, at the beginning of each five-year period prices should be arranged on the basis of a planned ratio between profit and wages on the same level for the entire branch. In this sense it is worthwhile to equalize all enterprises in terms of initial conditions. For the beginning of the five-year period is the time by which prices are to be brought in line with socially necessary expenditures. And this being the case, it is necessary to proceed from the assumption that labor that is equal in duration and complexity also

creates equal value of additional products, regardless of the level of technical supply. But this, in turn, means that profit in the new price should be proportional to wages as the closest measure of expenditures of necessary labor in terms of its quantity and complexity. Further, even throughout the five-year period, during the course of the enterprise's economic competition, taking advantage of the initial conditions that exist for each of them and improving them as production develops, there will be a differentiation in the increase in volume of necessary and added output per unit of expended labor as well as all production resources.

It seems that this approach to determining the profitability of items sufficiently provides for observance of the economic laws of socialism, since it is based on an equal evaluation of labor productivity in each initial period of price setting.



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YE. G. LIBERMAN EULOGIZED

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 130-131

[Article: "In Memory of Ye. G. Liberman"]

[Text] One of the authors of an article published in this issue is no longer with us. This is Yevsey Grigor'yevich Liberman, doctor of economic sciences, professor, emminent Soviet scholar and leading expert in economics, whose name is known both to specialists and to a broad group of readers. For those who did not know this man personally it is difficult to imagine his charm, how one sensed in his lectures, articles and simply speaking with him his multifaceted erudition that went far beyond purely economic knowledge, his unirritating irony and his brilliant polemical gift. A salient characteristic of Ye. G. Liberman was his sense of the new, which he did not lose until the last days of his life. Suffice it to say that he prepared the article we published (as a co-author) at the beginning of his 84th year of life. I should also like to mention Yevsey Grigor'yevich's rare benevolence. More than 70 of his students (and among them many doctors of sciences) will always remember this ruddy, blue-eyed cheerful man.

He began his career in 1915, immediately after completing the gymnasium--he began as a statistician and toward the end of his life he returned to this specialty. But there were many events between these periods. He graduated from Kiev University and from 1923-1930 his life was involved with the Institute of Labor in Kharkov where he went through graduate school, later to become the chief of the laboratory for accounting and analysis of production, and he took scientific business trips to Germany twice. Yevsey Grigor'yevich loved to talk about how during one of these trips he fulfilled an instruction to acquire the first set of keypunch machines in our country and how he then introduced these machines at the Kharkov Serp i molot plant. From 1930 through 1963 he worked at the Kharkov Engineering and Economics Institute, and for a long time was in charge of the department of organization and planning of machine building production there. During the years of the Great Patriotic War he occupied a responsible post in the Kirghiz Ministry of Finance. Then he was a senior scientific associate of the Scientific Research Finance Institute. After 1963 he worked as a professor in the department of statistics of Kharkov University.

Ye. G. Liberman published a large number of scientific works. Especially well known are his articles in the magazine KOMMUNIST in the middle of the 1950's and his article entitled "Plan, Profit and Bonus" published in PRAVDA in September 1962 which, on the suggestion of the editorial staff, opened up a broad discussion of problems of the economic mechanism. In these articles the author managed to reflect the immediate need for improvement of planning and economic stimulation of production. This is perhaps why certain old journalists in the West tried to present him as the "author of reform" in 1965, even though Yevsey Grigor'yevich himself always and very resolutely emphasized the decisive role of the collective reason of the party and proudly called himself a party propagandist. Any kind of vainglory was alien to him, he simply kept his hand on the pulse of practice. At many plants, for example the VAZ, ZIL and other leading enterprises of the country, workers in economic services knew him well, for Yevsey Grigor'yevich generously shared his extraordinary knowledge and frequently helped to solve problems that did not exist in textbooks but were raised by life. And he always emphasized that he himself was learning at the same time since he saw in this mutual exchange of ideas, knowledge and problems between the scientific worker and the practical worker an important incentive for the development of science and its penetration into production.

Yevsey Grigor'yevich traveled a great deal not only in our country, but he also gave lectures abroad. He visited Czechoslovakia, Italy and Egypt. His books have been translated into foreign languages and have been published and republished in Cuba, the GDR, Czechoslovakia, the FRG and the United States. His best known monograph is "Economic Methods of Increasing the Efficiency of Public Production," which was published in 1970 by the "Ekonomika" publishing house. In our magazine he published (as a co-author) in 1978 the article "How to Defend the Interests of the Consumer Enterprises?" which brought numerous responses from readers. And now--his last work, which the editorial staff received not long before the author's death.



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ROUNDTABLE DISCUSSION OF LEADERSHIP QUALITIES NEEDED FOR PROMOTION

Novosibirsk EKP: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 132-143

/Roundtable discussion in response to article by A. A. Avakyan, "Feedback," EKO, No 9, 1982: "Not a Search for Natural Genius, but Planned Work With Personnel"/

/Text/ The materials on problems of promotion and training of management personnel of enterprises published in EKO were considered by students of the Academy of Social Sciences under the CPSU Central Committee. During the conversation they expressed many of what we consider to be valuable remarks and suggestions, with which the editorial staff has decided to familiarize the magazine's readers. The discussion was led by a member of the EKO editorial board, the chairman of the department of political economics of the Academy of Social Sciences, professor, doctor of economic sciences, L. I. Abalkin. Let us present the participants in the discussion--they are students and graduate students of the Academy, and before beginning training they were experienced party workers:

N. P. Dubovitskiy, first secretary of the Leninskiy CPSU raykom in Taganrog;

D. A. Zamilov, consultant of the journal POLITICHESKOYE SAMOOBRAZOVANIYE;

V. F. Kashcheyev, first secretary of the Novozybkov CPSU gorkom in Bryansk Oblast;

S. A. Kupriyanov, head of the industrial transport division of the Volynsk gorkom of the Communist Party of the Ukraine;

A. A. Laptiyev, deputy chief of the division for organizational party work of the Khabarovsk CPSU kraykom;

T. A. Margvelashvili, first secretary of the Chiatur gorkom of the Communist Party of Georgia;

A. I. Martynyuk, chief of the construction division of the Chernovits obkom of the Communist Party of the Ukraine;

Yu. V. Fokin, head of the construction division of the Kamchatka CPSU obkom;

N. V. Shchevayev, secretary of the Kostroma CPSU gorkom;

L. I. Abalkin: It's hardly necessary to prove that the effectiveness of administration and the entire economic mechanism depends to a decisive degree on the person to whom the management of production and labor collectives is entrusted. How does one select managers, how are they prepared, what criteria are used to evaluate them? The article by A. A. Avakyan, "Feedback," which raises these questions is interesting and extremely debatable.

The problem of selecting and training production managers is both old and new at the same time. The richest, although inadequately studied, experience exists here. Yet life constantly gives rise to new problems that essentially increase the demands on management personnel. The system of training, selecting and promoting personnel cannot remain unchanged either.

The timeliness and, one might say, the urgency of the issue are also determined by the essential shortcomings in this area. The party, as you well know, has repeatedly pointed them out. Therefore it is so important today to generalize the experience that has been accumulated, to analyze existing practice critically, and to search for new, more effective solutions.

Necessary Stages of Growth

N. V. Shchevayev: In Avakyan's interpretation the promotion of managers is similar to a search for natural geniuses. He suggests digging through masses of "rock" in order to find a valuable ingot . . . but in fact we need planned and consistent work with management personnel. But it should not be started at the enterprise, but previously--on the bench at the institute. A person studies for 5 years at the VUZ. During this period it is quite possible to reveal capabilities and inclinations of the student toward management activity and to develop them. Then he will come to the enterprise prepared for organizational work.

I do not know if the author of "Feedback" deliberately singled out only one aspect of the problem--promotion of management personnel of the enterprise. It cannot be considered separately from the system of training and education of personnel. This viewpoint has already been expressed by party workers and managers of enterprises of Novosibirsk in a "roundtable" discussion and I wish to support this in all ways.

And, finally, one must have a clear idea of how to develop production managers. I am convinced that this is a lengthy process and that the person must pass through certain stages of growth. Let us say that a plant director should work as a shop chief, a production supervisor or in some other position of the lower or middle level of administration in order to get a good idea of all the problems in managing an enterprise. He must also prove himself in public work.

We sometimes allow mistakes by violating this principle. When I was in charge of the plant party committee the following case came up in my practice. A specialist working as a designer had proved himself well. He was promoted to head designer and soon the position of head engineer of the enterprise opened up and he was appointed to it. Unfortunately within a half year it became obvious that one could not make a technical plant manager out of this person. He had only just been torn away from the drawing board and he did not have the skill to work with people. We were hasty in promoting him and could not help him to develop organizational abilities. But if the specialist passes through certain stages of growth, he will be prepared for all aspects of management activity.

D. A. Zamilov: The analogy with the Army is not without interest. It has a clearcut advancement through the ranks. What happens in cases when this principle is violated is demonstrated in the novel "They Are Not Born Soliders" by Konstantin Simonov. A senior lieutenant immediately became a major general in aviation--remember what came of this. Position--age, position--age . . . and so it is for all of the stages of the service hierarchy. In the Army this principle operates really clearly and is of a certain amount of interest for industry. It is bad when a person is hastily promoted, but it is no better if he is kept for many years in a position of a lower line supervisor.

Yu. V. Fokin: Work with the personnel reserve should contribute to planned advancement. But it has a number of difficult aspects. What should the reserve be in terms of quantity for one position or another? It is not simple to answer this. Further, there is the moral and psychological aspect: should the collective know who is in the reserve? A difficult question. There are many fairly good and, I would say, even good supervisors who are suspicious about the reserve for their positions. Someone at our enterprise thought up the name "mine layer" for people in the reserve. They tell the manager: "Look out, you have a mine layer." Sometimes these psychological aspects make it impossible for us to obtain reliable information about candidates for promotion. Therefore the question arises: Is it necessary for everyone to know that a person is in the reserve or not? In order to obtain an objective idea about the candidate it is necessary to take advantage of various methods of evaluating and educating the reserve. These include certification, competitions, business games and temporary duty assignments. In this I agree with Avakyan.

A. I. Martynyuk: I see the shortcoming of the article in the fact that the author places economic and technical aspects of personnel training first. If with all his erudition a person does not have the qualities of an organizer which should be inherent in a manager, he will not be able to take charge of a collective.

The main reference points are Lenin's principles for selecting personnel in terms of business qualities, and these qualities are not revealed by competitions and certification: they must be tested in practice. The issue of the need for temporary duty assignments was correctly raised at the "roundtable" in Novosibirsk. In my opinion this is one of the methods of checking and practice, where the candidate for the planned position can prove himself, learn more and, moreover, can himself realistically evaluate his own capabilities and readiness for the new job.

A. A. Laptiyev: Avakyan's suggestions are directed toward finding an initial point for selecting a candidate. In essence, his entire article is concentrated on this. Herein lies its narrowness and one-sidedness. The only thing new that I saw was that the author suggests replacing certification with competition or augmenting the one with the other. I do not think that this solution will help reveal the actual capabilities of the candidate. In the process of competition we see only the person's knowledge of one problem or another. But it is one thing to submit a plan and another thing to be able to implement it.

I remember my shop chief with whom I began to work as a master after completing the institute. A wonderful organizer, but his technical capabilities were not the greatest. He frequently called me in, at that time quite a young engineer, for advise on technical problems. But it was enough for him to grasp the essence and he was able to organize the matter quickly. Now he is deputy production chief of the plant and is considered to be an excellent organizer.

But what about small enterprises where the number of engineering and technical personnel eligible for promotion is small, for example, in the food industry? There is a large number of these enterprises in the cities. How does one conduct competitions there? Therefore I have a critical attitude toward this suggestion.

N. V. Shchevayev: But still it would be a good idea to look at what would be produced by the competitions of plans suggested by the author. In principle they could augment the certification, especially if the subject for them was a test of the knowledge of modern methods of administration: the application of economic and mathematical methods and the development of automated control systems, social psychology, pedagogy, economic strategy of the 1980's, methods of improving the organizational structure, and so forth.

My suggestions: a system of work with personnel that is tested by many years of practice must be augmented with new forms.

Will the Evaluation Be Objective?

N. P. Dubovitskiy: It seems reasonable to me too to augment certification with a competition of plans. This will make it possible in the first stage of the system of work with personnel--during the selection of candidates--to determine comprehensively the competence of the specialist and his prospects for advancement. In the next two stages--determination and development of moral and political qualities, organizational capabilities and other features necessary for a manager--the main role should be played by party organizations and, in the final analysis, they should decide whether a candidate of the reserve is worthy of becoming a manager. But competence and knowledge of modern methods of administration are objective prerequisites for a candidate for a position of production manager.

There is a problem of objective evaluation of the candidate. Therefore although the author's suggestions are not indisputable, they do include an attempt to eliminate elements of subjectivism.

L. I. Abalkin: I wish to draw attention to one more issue. There is the concept of the "controlled" and "uncontrolled" specialist. It happens that a talented designer or technologist is a good organizer but "uncontrolled." Regardless of how much you talk to him, he does things his own way. How does this reflect on the promotion of these people? Does it not happen that instead of the objective merits of this worker and his business qualities, instead of accounting for the results which he has achieved, he is evaluated from the standpoint of the convenience or inconvenience of working with him? How does one fight against that?

V. F. Kashcheyev: We divide supervisors into "controlled" and "uncontrolled" when we begin to substitute them. It reaches a point where the chairman of a kolkhoz is told where and when to plant and winnow, and whom to place on the combine. The manager, naturally, objects to this approach and he is registered as "uncontrolled." Within the framework of this administration even a good organizer can lose his initiative. There are clearly regulated duties of managers. It is necessary for certain levels to coordinate them, but neither party nor Soviet nor higher branch agencies should take over these functions.

N. V. Shchevayev: The author of "Feedback" is in favor of expert consultation organizations which would evaluate the managers of enterprises. This is quite incomprehensible to me. Some independent organization which is responsible for nothing, whose jurisdiction is not known and only gives recommendations and expert decisions . . .

S. A. Kupriyanov: I quite agree with Shchevayev: an expert commission from the outside cannot determine which of the candidates is more worthy for the position. The promotion could be handled more correctly by the administration, party, trade-union and other social organizations of the enterprise, a council of masters, a council of young specialists and so forth. Before promoting one candidate or another it is necessary to see him at work, in interaction with the collective. No commissions made up of people from the outside can find the "optimal candidate," as the author writes, on the basis of principles of system technology.

L. I. Abalkin: Stepan Andreyevich, and what if a specialist fulfills the plan at the level of the director?

S. A. Kupriyanov: One should not hurry with the appointment. It is necessary to grow gradually, to have one-the-job training in higher positions. And then what will come of this plan? How will it be regarded? We have already said here that it is necessary to think carefully about how to organize the writing and consideration of it. The author has not thought this out. In any case an expert commission from the outside should not decide the fate of the plans.

Yu. V. Fokin: I do not deny that the author's proposals contain a rational kernal for improving methods of selecting candidates, right down to the utilization of system technologies and computers. But the individual approach and the evaluation of the subjective qualities of each candidate should always remain the main things. And this is one of Lenin's principles of work with personnel: careful study of the individual at work, his possibilities and his capabilities.

Of course, there are mistakes and there are expenses. Among those who are promoted there are careerists and morally less than upright people who take advantage of a management position for their own purposes. One cannot look into the soul of each one of them. But if there are people who have worked side by side with them for a long time and have not noticed these shortcomings, it is even more difficult for people from the outside to determine a person's true qualities.

The question of commissions is debatable. The author writes in a subheading: "And Who are the Judges?" One can ask in response: "And Who Appoints the Commission?"

V. F. Kashcheyev: The author suggests an expert evaluation of the strategy of the enterprise according to national economic criteria in order to avoid the influence of local and departmental interests and peculiarities. Is such a refinement possible? Is there a system of planning and is there a system of control figures and indicators which follow the line of central departments and which, in the author's opinion, do not correspond to national economic criteria?

N. P. Dubovitskiy: If an enterprise is fulfilling its plan we praise it and publicize it everywhere. But if one analyzes its reserves more deeply, one can frequently see that they are far from exhausted. The enterprise could be working even better. Avakyan is right when he asserts that the manager is motivated to provide himself with less difficult work in the future and have a guarantee against any random influences.

Reply: This is not usually the case.

N. P. Dubovitskiy: Not as a rule, I agree. But nonetheless such an approach exists and one cannot forget about it. The manager of the enterprise is not motivated to take on a difficult assignment either morally or economically. If the state plan is not fulfilled his incentive funds decrease. He himself is responsible to the branch and the party organizations, and he is chastised. And so, in order to avoid all this, he includes reserves in the plan.

Question: But can the branch division of the party obkom really not straighten this out?

N. P. Dubovitskiy: You see, the branch division of the party obkom is interested in a particular territory and a particular group of enterprises. And it is not interested in making sure that the enterprises look better. Therefore I would still be in favor of interdepartmental commissions, but ones which would not only control and "Chastise," but with their consultative activity would also help the enterprises to extracate themselves from the situations that arise.

D. A. Zamilov: Perhaps the system of expert commissions proposed by the author could be utilized in cases where the branch has exhausted its possibilities of working with the enterprise? It has tried one thing and then another and then another and then another . . . in this situation it is necessary to turn for help to such an expert council or a similar one.

"They Do Not Want to be Masters--That is Precisely It"

L. I. Abalkin: Recently one frequently hears the opinion that young engineers use their arms and legs to fight against being appointed to management work. Previously it was considered prestigious to be promoted from masters to shop chiefs, production chiefs and so forth. Now a young specialist rejects work in the sphere of production administration with all his might. How is this explained and what, in your opinion, should be done to solve the problem?

Response: No, what do you mean? He would be a head technologist . . .

L. I. Abalkin: A head technologist--true. But without a desire on the part of youth, a good desire to show themselves, to test their capabilities in organizational activity, it is difficult to prepare production management personnel.

T. A. Margvelashvili: Indeed, recently there has been a lack of desire on the part of young specialists to occupy management positions in industry. The difference in payment for line supervisors and workers in technical services is insignificant, and the responsibility when promoted to a management position sharply increases. And this stops them.

I think it is necessary to change the psychology, instill a feeling of responsibility, and regulate the wages of line supervisors.

A. A. Laptiyev: I am not convinced that youth do not want to be managers. At least at those enterprises where I have worked. They do not want to be masters --that is precisely it. An engineer coming to a plant after the institute is ready to work in any design division where you need him, but not as a master. It is no accident that we still have many master-practical workers.

I was a master for 6 years. It was very interesting and lively work. But young people are afraid of it. It is one thing to be a technologist or a designer. But when you are faced with living people with their characters, merits and shortcomings--this is much more complicated. And not every young engineer is prepared for this.

V. F. Kashcheyev: I see the reason in the fact that in the VUZ we train youth for purely engineering specialties and we do not teach them production management skills. An institute graduate comes to the enterprise completely unaware of the means and methods of working with people. Here is a break in the chain of personnel training. It should be eliminated. One should thing about how to change teaching methods in this sense.

There is another reason why young specialists are not retained: the necessary conditions must be created for them. People leave when they have barely worked the number of years necessary after the institute because they have not been assisted in daily life or in industry.

N. P. Dubovitskiy: The master must come to work earlier in order to go around to all the working positions and meet the brigade. He cannot even sit down before dinner and there is no time to smoke. And after dinner he must inform

the shop chief of what has been done and what has not been done, plan the work for tomorrow, and inspect the condition of the section after the shift. Thus even during a good and peaceful time his working day amounts to 9-10 hours. And if the day is difficult, it is necessary to work for days on end. I remember when I was a master and there was an especially important assignment. I worked in the shop for days. But the technologist comes to work at five minutes before eight and at exactly 5 o'clock in the afternoon he is free.

L. I. Abalkin: Nikolay Pavlovich, do you have suggestions about this?

N. P. Dubovitskiy: Above all, economic levers. The second thing is benefits. Passes, vacations, housing and so forth. The masters must be considered first of all. Of course, moral stimuli as well. A master must be evaluated according to his work and concern must be shown for him.

A. A. Laptiyev: Still, the essence of this matter lies deep. My own aviation plant has everything. The master has all the privileges. But this is not enough. The master must perform a good deal of work that is not natural for him. He is now a supply worker, a repair worker or anything you want him to be. And this also drives them away. Regardless of how you arrange moral and material incentives, if you do not improve production organization and arrange it so that the master performs his own specific functions, the position will remain unpopular.

Sanctions: Against Whom and How?

A. I. Martynyuk: I wish to emphasize that the young manager needs help. The responsibility is really increasing. And when it has reached this point, we sometimes encounter a situation where a person is promoted to a manager and then they forget about him. The author of "Feedback" suggests applying sanctions against those people who have not coped with their assignment. I do not support this opinion. Sanctions will frighten the youth away from management positions even more.

Yu. V. Fokin: In practice I have come up against this situation. There is an excellent master who works wonderfully. We make him a supervisor. Everything is fine. We promote him to chief of the section. And he can handle everything here too. We promote him to supervisor of the construction administration and he fails. Should we punish him? For what? He is a good specialist.

I do not think that it is always necessary to advance in terms of positions. It is also necessary to advance in terms of salaries. It is expedient to pay a good specialist additionally for a high level of competence. Not as it is now when the range in salaries is 10-15 rubles. The decree concerning improvement of the economic mechanism grants managers of enterprises the opportunity to increase the additional payments to the salary for engineering and technical personnel up to 30 percent. It is necessary for the managers to utilize the rights they have been granted correctly.

N. P. Dubovitskiy: I agree. It is not necessary to give the director and also the chief of the division of the head technology the opportunity to discharge unpromising specialists. Let there be 2 instead of 5, but double their salaries There will still be a savings, and the situation with labor resources will be alleviated. We will not know the problems of personnel shortages.

I would also like to add that the existing bonus system does not motivate the manager, beginning with the master and ending with the director. Bonuses are now paid every time someone sneezes--whether there is a good reason for them or not. I think that bonuses should be limited and salaries should be made dependent on the results of the specialist's work.

V. F. Kashcheyev: But still the responsibility for promoting management personnel of enterprises should be increased. In order for one person or another to be responsible for promotions it is necessary to have a specific document that regulates this.

A. A. Laptiyev: There is no need to be categorical about the determination of sanctions. Possibly after a specialist has failed in a management position there is no need to promote him to another one that is equal. But as time passes, he works more, observes and accumulates experience. This happens especially frequently with young personnel: a person who was promoted too soon has not coped. But years have passed and he has gained practice and practical wisdom. Therefore one cannot speak as categorically as in the article ("not promote them again")--there should be stipulations about where and in what cases.

L. I. Abalkin: On the other hand, how many times has the press raised the question: A person has been registered on the staff and then he is promoted from one place to another. He has made a mess of the job there, and in the other place he has failed . . . but he remains on the list and no one can decide what to do with him . . .

A. I. Martynyuk: Unfortunately, this happens in life. This is our problem. But if we are to speak about sanctions, we must speak about measures related to that person who repeatedly promotes this unsuccessful manager.

L. I. Abalkin: How is this done?

A. I. Martynyuk: The person who, in spite of all the failures and unsuccessful attempts of the manager, each time suggests him for appointment to a new position should bear responsibility to the higher party agency.

Question: And if he was recommended by the plant director and this was agreed upon by the ministry and the raykom?

A. I. Martynyuk: This means that all of them are guilty and do not know the individual. One can draw the conclusion that work with the personnel reserve for promotion at this enterprise was superficial. Everyone thought that there was a reserve, but this reserve was essentially poorly understood.

T. A. Margvelashvili: If a person has ended up on the staff list and remains on it regardless of the results of his activity, this is bad. In the final analysis one management agency or another is to blame. For people are not promoted to management work without approval from this agency. Unfortunately, one must recognize that there is no clear and efficient system of control over work with personnel. Feedback, using the author's words, should be improved. But still I am against sanctions. One cannot deprive a person of prospects.

Question: And if he has been stealing?

T. A. Margvelashvili: Well, that is quite a different matter. Such a person should be taken to court and punished with all the severity of the law.

L. I. Abalkin: There is no need to discuss the fact that we are in a difficult stage of economic development. The 26th CPSU Congress sets the task of completing the changeover of the economy to the intensive path of development. Carrying this task out, of course, requires large changes in the technical and structural policy, in the policy for capital investments and in the economic mechanism. And, undoubtedly, the fulfillment of this task depends on the selection and training of managers of enterprises who are able to solve modern problems with modern methods.

How does one find these managers and evaluate present managers of enterprises, their readiness and capability of solving new problems, and how does one reveal those potential candidates who would combine technical intelligence and a broad economic world view with a party approach to the matter and with the ability to work with people? The urgency of these issues has been demonstrated by our "roundtable" discussion. Everyone has his own viewpoint and his own experience. They elucidate various aspects of the problem. Therefore the statements have varied, right down to being diametrically opposed.

Various viewpoints are a natural phenomenon. It reflects an aspect of the search. For example, competitions are suggested in the article. I agree with the others, that this is not an ideal solution. It is necessary to take man's individual peculiarities into account. The one who is more insistent enters the competition while the more modest one things: "Why?" And even here one can lose. I am not even speaking about enlisting expert consulting firms in the evaluation of candidates for managers. They are quite unacceptable for this role. EKO has repeatedly come out in favor of expert consultation firms, but with quite different functions. Economic diagnosis, consultative assistance in improving administration on request from the enterprises--these are the main areas of their activity.

Searching is always accompanied by various approaches, and contradictory opinions reflect the complexity of the problem. But in spite of the multi-faceted nature of the problem, there are fundamental principles which have been tested by life. One should be guided by them. This was emphasized by many of the speakers when speaking about Leninist principles of selecting and placing personnel. Concretization of the overall principles and their practical application open up an immense base for creativity and for the search for the best solutions. If one is to speak about individual details of the mechanism for promoting personnel, beginning with the selection of possible candidates and training them, then this mechanism is inadequately arranged, especially at the enterprises. There are many problems here, "blank spots," and your suggestions, like the suggestions contained in the materials published in EKO during the process of discussing the problem will help to search for better solutions.



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DIFFERENT INDUSTRIES REQUIRE DIFFERENT LEADERSHIP QUALITIES

Novosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 144-146

[Article by G. A. Yakshin, director of zonal courses of the Institute for Advancing Skills of Managers and Specialists in Industry (Gorkiy): "Different Industries -- Different Managers"]

[Text] In the article entitled "Feedback" the point about selecting a universal manager who would be suitable both in city A and city B, at any enterprise and in any branch seemed questionable to me. One can understand what evoked this suggestion: the author is bothered by the fact that the personnel possibilities are not the same in various regions. A. A. Avakyan suggests that in all cases the best candidate should be selected, the one with a certain group of qualities that are necessary for the manager.

Yet one cannot forget that in each individual case various qualities can be required of the manager. And various candidates can be most appropriate in various production conditions. Therefore when promoting and training management personnel it is necessary to take a differentiated approach which takes into account the specific features of the branch, enterprise and production subdivisions, the peculiarities of the collective, and the nature of specific production and social tasks. Inadequate accounting for the specific features of production is one of the reasons for the poor effectiveness of existing forms of work with personnel. The documents that regulate the personnel work are sometimes too general, categorical and inflexible.

The need to take a differentiated approach is confirmed by the results of research which we conducted in the ship building industry. The goal of the questionnaire was to reveal a set of requirements for managers of various production subdivisions. The questionnaire contains a list of jobs, socio-demographic and skill information, and certification characteristics. The results of the questionnaire at 33 enterprises, augmented by an analysis of existing provisions, job instructions and other materials, give reason to assert that the three types of production subdivisions existing at enterprises of the branch make various demands on the knowledge and experience of managers.

The first type included subdivisions with mass and large-series production of well assimilated homogeneous products with narrow object specialization and flow line organization of production. In the branch they comprise only 10 percent of the production subdivisions. Here most of the attention of the master and shop supervisor is concentrated on work with people, on maintaining the labor rhythm and regulating the process of manufacturing products with relative stability of production. This, of course, does not eliminate concern for the introduction of new technical equipment or prompt repair of equipment, or for the participation in the solution of long-range problems either. But the proportion of work related to technical equipment, technology and preparation of production for this kind of manager is not great. The circle of his functions is usually constant and for each kind of management work the appropriate standard procedure exists or is developed. According to data from the expert questionnaire, in the work of managers of this group 15-20 percent of the time goes for technical and technological decisions and the rest for decisions that require administrative knowledge, skills and so forth.

The second type includes the largest group of subdivisions in the branch (about 70 percent) with series and small-series production of complicated kinds of products. Here the manager devotes a considerable amount of his time to preparation for production, operational planning and improvement of technical equipment, technologies and normatives. He participates in eliminating various shortcomings in the blueprints, production plans and schedules and in the engineering support for the work of the brigades, sections and services. According to the data of the expert evaluation, the managers of this group spend 25-30 percent of their time on solving problems related to technical equipment and technology.

The third type occupies second place in terms of the number of production subdivisions at enterprises of the branch (about 20 percent). It includes subdivisions with experimental, small-series and individual production of products which have complicated design and technological specifications. This group also includes many auxiliary and service subdivisions. Centralization of the functions of administration is most insignificant here. An even higher level of technical training is required of the manager, and 35-60 percent of his time goes for solving technical and technological problems.

Within the framework of one enterprise there can be subdivisions of all three types. But in spite of such significant differences among them, the plants have the same requirements for certification, training and advancing skills of management personnel, and bases for stimulating their labor which are not very well differentiated.

Of course, a differentiated approach is applied to one degree or another in practice. When evaluating a candidate for management the administration and the party committee usually have in mind the specific conditions and peculiarities of his future activity and the corresponding group of qualities. But these searches and methods are not reinforced by scientifically substantiated instructions and provisions.

Although the tendency toward the utilization of methods of mass production in unit and series productions with simultaneous centralization of administrative functions, deepening of specialization and cooperation of labor in the administrative staff involve a reduction of the demand for managers of the second and third types, the rates of this process should not be exaggerated. There will be no significant changes in the ratio among types of industries in the near future. Therefore the need to take a differentiated approach to training managers remains. If a master of the first type can arbitrarily be called a "sergeant of industry," a similar manager of the third type can respectfully be called a "director of a section," since his function really has nothing in common with the duties of a manager of an enterprise.

The results of the research that was conducted were taken into account when organizing territorial courses of the branch institute for advancing skills in Gorkiy. We take a differentiated approach in arranging the training groups and, within the framework of justified deviations from the training plan, we increase the proportion of technical and technological disciplines when training managers for subdivisions of the second and especially the third type, reducing the volume of these disciplines in training plans of managers of subdivisions of the first type. In addition to professional instructors, we enlist the most qualified management workers of the enterprises.

The training and evaluation of personnel should not be separated from the peculiarities of production, but, conversely, should in all ways take its specific features into account, and a differentiated approach should be applied.



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ASPECTS OF YUGOSLAVIA'S SOCIALIST SELF-MANAGEMENT SYSTEM REVIEWED

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[Article by Yu. K. Knyazev, doctor of economic sciences, Institute of Economics of the World Socialist System of the USSR Academy of Sciences (Moscow): "Contractual Relations in the Yugoslavian Economy"]

[Text] In the Yugoslavian economy, whose organization and functioning are based on the principles of socialist self-management and relatively extensive utilization of commodity and monetary relations, contractual ties among various subjects of management are exceptionally important. Economic agreements concluded among related enterprises have long been a customary practice and serve as an indispensable part of the economic instruments which Yugoslavia uses to regulate the interrelations among enterprises, and it provides for assistance from state agencies in the development of the economy. Contractual relations have been developed even more as a result of the reorganization of the Yugoslavian economic mechanism, which is being conducted in keeping with the decisions of the 10th (1974) and 11th (1978) Congresses of the Union of Communists of Yugoslavia, the provisions of the Yugoslavian Constitution of 1974 and the numerous laws and decrees adopted in 1975-1982.

The main point of the changes in the structure of the Yugoslavian economy consists in the introduction of the so-called system of combined labor. Yugoslavian self-management means not only relative independence for economic organizations, but also at the same time their interconnection within this system. Its pivotal element is the new organizational structure of self-managed economic subjects which is reinforced in the Yugoslavian Constitution and the Law Concerning Combined Labor adopted in 1976. With the introduction of this system of combined labor, organizational and economic conditions are created, in the first place, for the development of autonomous financing relations among all relatively independent economic organizations and, in the second place, for their simultaneous voluntary self-integration on the scale of the national economy. The new content of self-management has found external expression in the change in the name of economic organizations, which are now called not enterprises, but organizations of combined labor (OOT).

The establishment of all-embracing contractual relations has become one of the central areas for the reorganization of the economic mechanism. When introducing the system of combined labor in Yugoslavia, along with the usual economic agreements, so-called social agreements and self-management agreements have also become widespread. Concluding these should become the main method of resolving immediate and long-range national economic problems.

Economic Agreements

Economic agreements, which various OOT's conclude with one another during the process of exchange of goods and services are used extensively for regulating production activity, organizing product sales and material and technical supply, carrying out construction and installation work, providing for transportation of cargo, and so forth. This kind of economic agreement practice is interesting from the standpoint of possible utilization of this experience since it corresponds to the tendency toward more extensive application of the economic agreement in the planned administration of the national economy which has arisen in the USSR and other fraternal countries.

The significance of economic agreements in the Yugoslavian economy is determined by the fact that the material and technical support and the sale of products carried out with the help of trade here--through direct contractual interconnections or through the system of wholesale and retail trade organizations. Economic organizations to a considerable degree establish supply and sales ties independently, concluding agreements for reciprocal deliveries with one another. These ties, as a rule, are stable and long term and they contribute to the development of production specialization and cooperation, which are not impeded by departmental barriers--Yugoslavia has no branch ministries and all union and republic secretariats and committees are functional agencies.

Yugoslavia distinguishes two methods of commodity exchange: direct and mediated. Direct commodity turnover is carried out directly between the producers and the consumers (the latter can be both economic organizations and individual citizens). In this case the economic organization as a socialist commodity producer sells its products directly to the other economic organization or to the population (if it has its own wholesale base or retail trade stores). On the other hand, the same economic organization is supplied with the necessary goods for production purposes through purchases from other enterprises. In both cases the commodity exchange takes place without intermediaries on the basis of direct contractual ties between OOT's. The mediated method of commodity exchange is carried out through trade organizations.

In both methods of commodity exchange the participants utilize the economic agreement as a legal and economic instrument that provides for purchase and sale of goods, warehousing of them, finishing and transportation of them. Economic contractual relations are utilized not only in the sphere of commodity exchange, but also in capital construction, property insurance, reciprocal credit for economic organizations and bank credit, as well as in the sphere of production services and other services.

Economic contractual relations are regulated in Yugoslavia by many legislative documents. The significance of economic contracts is shown by the special law enacted in 1978 concerning relations involved in the fulfillment of contractual commitments. The law is comprehensive and contains 1,109 articles. The first article says that "regulation in the legislative policy of contractual and other commitments is undertaken in order to create conditions for free exchange of commodities and services on the unified Yugoslavian market within the framework of socialist commodity production and in order to satisfy the material and other needs of the workers and citizens, and also to increase the responsibility of organizations of combined labor for the fulfillment of their commitments and thus for the implementation and development of socialist self-management of socio-economic relations." The need to enact this law is explained by the fact that the failure to fulfill commitments under various agreements and especially self-management agreements was one of the weak places in the Yugoslavian interrelations among economic subjects and frequently led to violations of financial discipline and to economic difficulties (mutual indebtedness of economic organizations, temporary inability to pay on the part of enterprises and banks, and so forth).

In Yugoslavian economic practice general agreements for purchase and sales are now signed for a year or a longer period, and additions are made to them periodically which make the deadlines and assortment of deliveries more precise. The agreements indicate the volumes, prices and delivery times, the quality of the goods, sanctions for failure to meet conditions of the contract, conditions for arbitration, and so forth. The quality of the goods must strictly correspond to Yugoslavian standards. During the first 8 days after the delivery the consumer has the right to return the goods to the supplier if they are of poor quality. The contractual prices can be fixed or flexible. With fixed prices the seller has the right to raise the question of changing (increasing) the price 30 days before delivery. If there are similar goods on the market at lower prices the seller should look for possibilities of reducing his prices. Otherwise the consumer can refuse to purchase them.

A major role in carrying out economic contractual commitments is played by the extremely strict material sanctions that can be applied to the party who violates the conditions of the agreement. A purchase and sales agreement envisions, as a rule, that if the delivery times are violated the supplier organization pays the consumer a fine whose amount is established in the agreement. Thus the amount of the fine for failure to deliver equipment on time can be 0.5 percent of the cost of the product. The fine is imposed through the economic court upon presentation of the appropriate documentation. If the commodity is delivered late, immediately after he receives it the consumer can file a suit for the payment of the fine and the court, as a rule, decides in favor of the consumer.

Reciprocal payments among economic organizations are regulated legally. In keeping with the law the purchaser must pay for the commodity before delivery (with a letter of credit) or within 15 days after the delivery (the payment can be made with a non-cash account or with a check, a bank draft and so forth). In order to ensure financial discipline the economic organizations

are not permitted to allow longer payment periods in the agreement. Otherwise a fine imposed by the economic court is exacted from the consumer.

With considerable independence of the economic organizations in questions of price setting, supply and sales of products, special attention is devoted to ensuring unity of the Yugoslavian market and avoiding monopolies and other antisocialist phenomena. The law adopted in 1976 concerning the fundamentals of the activity of organizations of combined labor in the sphere of trade and services lists acts and actions that violate the unity of the market and establish the corresponding material sanctions (fines). Forbidding speculation, the law lists the following actions of trade organizations that are regarded as speculation: making the sale or purchase of one product conditional upon the sale or purchase of others; concealing products and limiting or curtailing their sale, which leads to a shortage; overselling goods and unjustifiably increasing the number of intermediaries in trade; reciprocal advances for products that are sold without deducting interest; conclusion of fictional purchase and sales agreements; and failure to fulfill or violation of contractual commitments concerning trade in products without justifiable reasons. Especially strict sanctions are envisioned for speculative actions: in addition to fines, the illegally obtained profit is taken away in many cases, and there are also measures of criminal liability.

If the suppliers violate agreements concerning the supply of raw and processed materials, they are punished with high material sanctions, but nonetheless when there is a shortage of individual kinds of raw material these measures do not always normalize the situation. Suppliers deliberately make the expenditures to pay the fines in those cases when it is more advantageous for them to process raw material that is in short supply themselves. Thus the Bor copper smelting combine in 1980 had an overall volume of 76,754 tons of smelted copper, of which it delivered 49,556 tons to its clients and kept 27,198 tons for processing within the combine. What with the shortage of copper on the domestic market many enterprises that consume this valuable raw material were forced not only to make advanced payments for its delivery, but even to pay for some of it in foreign currency. Such examples show that the effectiveness of economic agreements decreases under extreme conditions and that in order to ensure contractual discipline legal and material sanctions should be combined with measures of the economic policy.

In addition to the usual economic agreements, during the past decade self-management agreements and social contracts have become widespread. They serve to regulate the interrelations among workers, managers and social organizations as well as other agencies, and also to coordinate mutual interests. The self-management agreements are distinguished from social contracts by the following factors. With the former the workers in organizations of combined labor and local cooperatives (local self-management agencies) and other self-management organizations coordinate their interests in the area of distribution of labor and reproduction, join labor and funds, establish the bases and measures for the distribution of the gross income and wages, establish mutual rights, responsibilities and measures for carrying them out, and so forth. Through social contracts the OOT's, economic organizations and houses of the government as well as organizations of the non-production sphere, state

agencies (central, republic and local), trade unions and other social and political organizations provide for coordination of socio-economic relations as a whole and the solution to problems of general importance. Many of them are already being resolved in Yugoslavia with the help of self-management agreements and social (including interrepublic) contracts. It is assumed that their significance will increase.

Self-Management Agreements

Self-management agreements are used to document the creation of all OOT's, including the basic organization of combined labor (OOOT) which is the initial economic and production unit of the national economic structure and the primary self-management unit. The OOOT is under complete autonomous financing and has all self-management rights and responsibilities. It acts as a corporate body and has its own bank account, but at the same time it is not organizationally independent since it is a part of a larger labor organization that corresponds to the entire industrial enterprise. The OOOT is not only the smallest technological and production unit, but at the same time the primary one, an economic unit with complete autonomous financing which produces products that are suitable for sale within the trade organization or on the market and, consequently, it receives income and regulates the entire complex of interrelations regarding the creation, distribution and reproduction of this income. The OOOT is also the smallest self-managed organization, whose labor collective has all self-management prerogatives, elects a labor council and utilizes direct forms of self-management (for example, general meetings) which are impossible in larger organizational units.

By signing a self-management agreement the workers enter the OOOT as the initial form of combination of their labor. According to the law on combined labor, a self-management agreement to combine the labor of workers into a basic organization contains a list of kinds of activity of this organization and the fundamentals for the regulation of socio-economic relations of workers, particularly in the area of control of production funds, distribution of gross income, distribution of personal income and regulation of labor relations, and also fundamentals of combining labor and funds within the framework of the labor organization as well as information for the workers.

Self-management agreements are also signed when any kinds of OOT's are created, whether it be a labor organization (initial organizationally independent form of combining labor and funds), a complex organization of combining labor (production combine), a business cooperative (economic association) or others such as banks and other financial organizations, insurance societies, or the so-called "self-managed interest communities" (SZS) in the area of material production and in the non-industrial sphere. Self-management agreements can be concluded among OOT's of all kinds, banks, SZS's, chambers of commerce and trade unions (less frequently--other social organizations and state agencies). The purpose of the agreements is to establish and distribute the rights and responsibilities of the parties.

Yugoslavia has formed more than 90,000 organizations and societies for combined labor whose internal and external relations are regulated by approximately 2 million self-management documents. In other words, self-management agreements are an economic and legal instrument of control which provides for concentration, specialization and cooperation of production, the establishment of various long-term forms of cooperation among OOT's, the combination of production capital, the coordination of production programs, joint sales and material and technical supply, coordination of prices of goods, joint actions on the foreign market.

Self-management agreements are widely used in the area of price setting. Among producers of certain kinds of commodities, their suppliers and their buyers in the form of trade organizations, production enterprises or consumers' organizations (when speaking about goods with broad consumption) agreements are concluded for applying so-called fixed prices and periodically changing them. These agreements are officially registered and published along with legislative acts. The participants in the agreement, as a rule, are one or several producer organizations and consumers. The goal of self-management agreements is joint actions of production and trade organizations on the domestic and foreign markets, the supply of large cities with food products and goods that are in mass demand, and also overall regulation of the Yugoslavian market.

The self-management agreements play no small role in the new system of planning. The five-year national economic plan is now drawn up in two stages that are closely interconnected. In the first stage they coordinate the drafts of the plans of self-management organizations: self-management agreements are concluded among them for the main planning indicators. These agreements determine which funds and for what purposes the participants are joined together, which part of their incomes they will allot for common needs, what result is expected, how the jointly obtained income will be distributed, and so forth. In the second stage final plans are adopted at the level of the federation, republic and community, and this includes measures of social regulation of economic development at each of these levels.

It should be noted that when developing the current five-year plan self-management agreements concerning the fundamentals of the plans of self-managed organizations are concluded with considerable delay and certainly not for all of the established indicators. Especially great difficulties arise when preparing these agreements among enterprises and associations of different branches of industry and in different republics. The coordination of the diverse and sometimes contradictory interests of numerous OOT's with the self-management agreements is still an extremely complicated matter.

Social Contracts

Social contracts are no less important for the functioning of the Yugoslavian economy. According to the law concerning combining the labor, the social contract is provided and coordinated by self-managed regulation of socio-economic and other relations which represent broader joint interests for the

participants in the contract, particularly in the areas of planning, price setting, distribution of gross income and private incomes, joint consumption by the workers, international exchange, the labor placement policy in Yugoslavia and abroad, and protection and improvement of man's environment.

In the system of national economic planning social contracts are a means of developing a coordinated plan as well as fulfilling its main goals and tasks. When drawing up and coordinating the draft of the five-year national economic plan for Yugoslavia in 1981-1985, five main social contracts concerning its bases were signed, not to mention many others which stipulate the policy for the development of individual branches and areas. On the basis of these contracts the union bureau of social planning draws up a draft of the plan which the union executive branch (the government) approves and submits for consideration by the Yugoslavian Skupshchina which enacts a law concerning the five-year plan. After its adoption a series of social contracts are concluded, whose participants are representative agencies of the republics and autonomous regions, large economic organizations, associations, banks, economic chambers and trade unions. Thus the Yugoslavian five-year plan for 1976-1980 envisioned the signing of a number of social contracts for the development of priority branches of industry and the national economy. In particular, contracts were signed for the construction of main highways, the development of nonferrous metallurgy, priority in the creation of production capacities for the ceramic and glass industry, credit for the sale of equipment and ships, and so forth. But there was a great deal of delay in the conclusion of the contracts because of the large amount of time it took to coordinate interrepublic interests.

Social contracts concerning the price policy are signed each year even though they are implemented with considerable difficulty and some of their points are not fulfilled at all (for example, concerning reducing the rates of increase of prices). Social contracts of a more general nature involve the main criteria for the distribution of the gross income and private incomes (1975), the fundamentals of the joint policy for labor placement (1977), the policy in the area of transportation (1978) and so forth.

With the appearance of the first self-management agreements and social contracts there also arose the problem of implementing them. As a rule, they envision measures for their implementation. The Yugoslavian Constitution notes that agreements and contracts should contain provisions for material and other responsibility of the participants for their implementation, and also conditions for changing these provisions. Since many contracts and agreements are not fulfilled because of the fact that the parties that have signed them have not actually been motivated to fulfill them, the law concerning combined labor especially emphasized the voluntary nature of these acts and the equal rights of their participants. Only in two cases is the participation in self-management agreements mandatory for labor collectives--when OOOT's merge and when the labor and funds of several OOOT's are combined into labor organizations. The sanctions contained in self-management agreements are applied by decisions not of the usual economic courts, but of special courts for combined labor. It is thought that because of this self-management and social contracts should have a greater compulsory force than legislative acts do. But in practice this has still not been achieved.

The observance of self-management acts is ensured by the participants themselves, and not by the coercive force of the state (as is the case with laws). Two kinds of sanctions are applied for failure to fulfill self-management agreements and social contracts: 1) measures of responsibility established by the participants; 2) measures of socio-political responsibility applied by agencies of authority and social organizations within the framework of their rights and responsibilities that are established by law.

Participants in self-management agreements, in the event of failure to meet their provisions, can make the following demands: to abolish economic transactions concluded among participants or with third parties with the intention of bypassing provisions of the self-management agreements; to annul the agreement if it contradicts the rights of the participants in self-management, the established policy or the principles of socialist ethics; to establish the fact that the agreement has become partially or completely invalid; to dissolve the agreement for justifiable reasons; to achieve fair reimbursement for damage to other participants in the agreement in the event that it is annulled; to abolish the agreement with a participant who is not meeting the commitments he has made, and to obtain reimbursement for the damage that is caused.

Measures of responsibility for failure to fulfill self-management agreements and social contracts are calculated to provide for complete observance of contractual discipline and the rights and responsibilities of all subjects of self-management. But in fact, as has been noted in the Yugoslavian press, many state agencies and public organizations tacitly sanction, for example, violations of social contracts concerning the distribution of income and private incomes, seeing in this the only way for specific OOT's to handle their financial difficulties. It is noted that this way the difficulties are not only not eliminated, but, conversely, are worsened and multiplied, being reflected in related economic organizations.

In many self-management agreements and social contracts the sanctions for failure to fulfill the provisions are formulated fairly loosely. Rarely do they envision specific measures which would be automatically applied against violators (fines, reimbursement for damage, and so forth). This shows the lack of desire on the part of the participants in the agreements to take on serious commitments when they are not confident of their ability to fulfill them. In keeping with the decisions of the 12th Congress of the SKYu (July, 1982), Yugoslavia is now taking measures to activate the control and arbitration functions of competent agencies, particularly the courts, for combined labor.

Various kinds of contractual relations which are extremely widespread in the Yugoslavian economy constitute an important part of its economic mechanism. And there is no centralized system for material and technical support and sales or for giving the workers planning assignments in physical indicators. Economic contracts, self-management agreements and social contracts play the role of one of the means of regulating the economic development of Yugoslavia. True, the system of contractual relations that has been presented could not eliminate certain economic contradictions in the Yugoslavian economy and cannot be regarded as a universal means of intensifying public production. But

in the context of the overall search for more effective forms of management this system is of a certain amount of interest.



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PSYCHOLOGICAL INTERACTIONS BETWEEN TEAM LEADER, TEAM MEMBERS EXAMINED

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[Article by V. P. Goryainov, candidate of psychological sciences, All-Union Scientific Research Institute of System Research (Moscow): "The Manager and His Immediate Environment"]

[Text] The chief of the trust, Ostrovov, was depressed: he had the feeling that he had fallen into a trap which he himself had set. The problem was that his closest assistants, his "personal command" rebelled against accepting a new, very experienced engineer into their "brain trust"--this is what the group of specialists who help him solve the most difficult problems call themselves. This was not the first case of rebellion on the part of the "brain trust," and each time Ostrovov became dispirited. In this case he especially liked the engineer and generally felt that he was an intelligent specialist who could be very useful.

"But can I generally act in the way I consider necessary?" Ostrovov suddenly asked himself. "For it is like I am caught up in a web . . . for a long time I have not been able to do anything myself, everything must go through the 'brain trust.' Because of it I am strong, and because of it I am weak. It is not without reason that they joke 'two trusts in a trust'" . . . .

It became difficult for Ostrovov to breathe, he stood up and went to the window. Observing how automobiles of various colors were moving along the street, sometimes catching up, sometimes passing one another, he recalled his appointments to the trust six years ago, how he had worked without sparing effort or time, how difficult it had been to find people who thought as he did, and how he hurried to find them, bringing to himself those who were more willing than others to agree to his suggestions. His business was on the way up and within a couple of years they began to speak about him in dinner speeches on occasions of anniversaries and the completion of facilities: "our soon-to-be minister." Some openly associated their advancement with the growth of his career. This raised Ostrovov's self-esteem and gave him confidence in his powers.

So it was even more painful to his self-esteem when three years ago the indicators of the trust began to drop. There were objective reasons for this, but he did not analyze them and saw what had happened as his own defeat. Members of his "brain trust," however, comforted him, hinting that if he would not object, everything would be done the way it should be. Since that time in the reports Ostrovov has received figures indicating a constant overfulfillment, although not a great one. Not understanding such a rapid metamorphosis, he demanded explanations from the "brain trust," which they gave him, although not very willingly. Ostrovov unwittingly valued the improvement with which they had developed a system of "slight adjustments," not very significant ones, but they would give the report a more "aesthetic" appearance. He could start a scandal and drive out the "brain trust." Most likely this would also be the end of his personal career. And he could not make up his mind.

Ostrovov noted how, because of this secret, the "brain trust" became quite closed and united. At that time he was glad of the deeper relations, but then there was the retribution: the painful feeling of constraint would not leave him, his brilliant prospects did not improve his mood, and they were replaced by a melancholy feeling for past freedom. Sometimes he managed to calm himself with the thought that for a complete experience of life it does not hurt to learn a little more about this practice of administration, that it is a game which involves risk and the clear features of a detective story. But this happened less and less frequently.

We are deliberately putting to the side the most important problem of the destructive consequences of "adjustments" (and perhaps, direct false additions) from which the national economy suffered. In this case we are interested in the personal aspect of this subject.

In terms of a number of signs--his influence on people, the informal responsibility he took on, the fact that he is the clearest representative of the values of his group--Ostrovov belongs among the leaders of management. But in this situation (we would call it borderline) a doubt arises: will they remain the same?

Social psychologists note that a group leader is strong not so much in himself as because of the people who support him the most actively. The relations between the leader and his "command" are far from simple, as some managers think, but are complicated and sometimes, as can be seen from our example, extremely contradictory.

Let us begin with the fact that the entry of each new person into the "command" does not always take place voluntarily and disinterestedly as it appears at first glance, but frequently out of a fear of remaining separate from the leading workers or a desire to share the merits of the leader. Here it turns out to be possible, without sharing the "program" of the leader or the methods of its implementation, to avoid conflict with the management and the "command" and even come under their protection.

As a result of the coordinated actions of the leader and his associates, there arises a powerful force which, however, is not without side effects. The influence of the leader is frequently stronger than he himself would like it to be. For example, the manager who is not a leader can easily change or adjust his initial decision and the collective reconciles itself to this, but it turns out that this is hard for a manager who is a leader to do, since it evokes in his followers surprise, a lack of understanding and protest right down to antagonism toward the "changed" leader and belief in the "former" one . . . .

The "command" to a significant degree identifies the leader with itself and, while supporting him, raises itself in its own eyes and in the opinion of those around it. Associating certain prospects with him, the "command" protects its future and this is possibly why it takes a cautious attitude toward the leader, protects him from conflicts and undesirable information, through its actions sometimes forming a damper, sometimes a shield, and sometimes a thick wall across the path to the complicated surrounding world. In practice this means that the manager who is a leader receives information that is filtered to a greater or lesser degree, most frequently information which pleases him or which he would like to receive.

Speaking in the language of system analysis, the system of the "leader" has received the protective system of a "personal command" which embraces it like a casing, which creates a permanently favorable artificial environment. As a result of this, the real, changing and harsh environment has ceased to exert on the system of the "leader" the developing influence which increases the complexity of its organization, its resiliance and wealth of controlling influences.

But the halting of development under the conditions of a changing environment always means regression of the system.

In other words, the paradox of the influence of the "command" on the manager who is a leader consists in that by creating only favorable and simplified conditions which do not stimulate the development of the manager himself, it can gradually "weaken" him.

Ostrovov, having sensed this, decided to turn for advice to an acquaintance who is a psychologist. They had a lengthy conversation and the psychologist allowed Ostrovov to express himself fully. Below is only the final part of their conversation.

Psychologist: Imagine that you openly admit your errors and in the most categorical form. People will regard this as a manifestation of moral force and authority. This will be your victory. But your present silence is defeat, which is still hidden from many, but not from all . . . .

Ostrovov: Not everyone will regard this in the way you suppose. They will begin to sneer and send anonymous letters. No, by admitting mistakes I will put an end to my career.

Psychologist: But can one gradually emerge from a difficulty? Speak openly with your management and with the people closest to you. Explain your situation and your decision not to submit to a comforting lie any more.

Ostrovov: I do not think this would be useful. Now I see that my immediate environment includes not associates, not people who think as I do, but flatterers who are in cahoots with one another. And they will let me sink if I try to change the policy.

Psychologist: But still I do not see any other solution except an honest conversation with the management and with the collective.

Ostrovov: I would prefer to go to another place, to change the situation and expiate my past guilt with work.

Psychologist: You can perhaps avoid unpleasantness for a certain amount of time, but someone will inevitably remind you of the past. And this will poison all your future successes.

Ostrovov: But still it is possible to overcome the influence of the past: I am trying with my work . . . .

Psychologist: At this moment you believe what you are saying. But life is complicated and human forces are not unlimited. Everything can be repeated in a new place. There is a great temptation to follow the well-trodden path when it is possible without working especially hard to appear to be the leader of an advanced collective . . . .

Ostrovov: Perhaps you are right. But perhaps there is some compromise, a golden mean?

Psychologist: I am distressed to see that all of your thoughts are directed not so much toward restoring the good opinion of the collective which you had as toward restoring yourself. Well, all right, let us return to you. Do you wish to retain a high opinion of yourself, your force and confidence, or will you travel the path where it is necessary to forfeit them? Which is it better for you to retain? I sense that you have a desire for sincerity. My advice: be true to yourself.

Ostrovov: Yes, here is something to think about . . . .

Ostrovov will have to make a difficult choice which will be affected by many factors in life, but mainly there are only two contradictory tendencies in the development of the individual, which lead either to progress or to disintegration. When the system of the "leader" contributes to a situation where the system of the "personal command" tries to protect it from the changing environment, that is, transforms it into a closed system, the second tendency arises. Sooner or later it leads the system of the "leader" to a retardation of development and breakdown. The other tendency arises when the system of the "leader" contributes to a situation where the immediate environment,

which can no longer be called a "personal command," but is more correctly called an "aktiv," provides full information about the changing environment. In this case the system of the "aktiv" provides the system of the "leader" with continuous development and flexibility in its controlling influences.

If Ostrovov does not follow the advice of the psychologist it is not difficult to imagine how he will continue to strengthen his "brain trust" with people who are convenient, pleasant and "true" to him. This can be achieved in various ways. For example, in order to be sure that the "brain trust" will not let him down, he will be less and less demanding of its members in business relations--"and will they suddenly become offended?" With time he will not be satisfied with a feeling of solidarity, he will want to know if there are people in the command who have their own opinion about his leadership. In order to know this it will be necessary to have people among his assistants who are especially reliable and who inform him. Thus more than layer of protection can appear, which will remove him even more from reality and he, Ostrovov, will become to an even greater degree a captive of his own "command." The creation of myths of additional accomplishments and inflated authority, degradation of the personality of the manager in any manifestations (arrogance, inaccessibility, irritability and so forth) and an atmosphere of artificiality and secrets in the institution, a separation of decisions from reality and disorganization--these are typical signs that accompany the regression of the manager who is a leader.

If Ostrovov finds within himself the power to take the other path he will either have to admit his mistakes openly or trustingly and sincerely ask that his weaknesses be understood and forgiven and to have the opportunity to expiate his guilt with future competent resolution to issues that have been neglected. The selection of the form is an individual matter, but one must say that with any form Ostrovov still runs the risk of "destroying his career." But he is also obtaining a chance to restore his personality, and this is now the main thing for Ostrovov.

With such a turn of events, in the "brain trust" there will be people who have become accustomed to the artificial situation they have created and they especially object to work in an open environment with real difficulties, being afraid of displaying their own incompetence. If he remains in his position, Ostrovov will have to considerably increase his participation in the management of all specialists of the trust, increase his demandingness on himself and on them, search for closer cooperation with creatively active people who are not satisfied with the existing situation in the trust, and in the future constantly renew the aktiv in order to receive new information more rapidly from the very heart of the collective.

A question can arise: "But still is a 'brain trust' good or bad, is it a help or a hindrance?" It turns out that it is both. The contradiction here is complicated but it can be completely resolved. Every manager who is a leader can easily determine the ratio between the positive and the negative in his environment and figure out if a "command" has gathered around him or if it is a true aktiv of people who think alike, on whom one can rely in order to solve jointly both current tasks and strategic problems.


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TWO MANAGERS OFFER DIFFERENT APPROACHES TO PROBLEM SOLVING

Nosvosibirsk EKO: EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 2, Feb 83 (signed to press 5 Jan 83) pp 172-174

[Article: "Which Style Is More Effective?"]

[Text] [Assignment]

Nothing reveals the style of management like the actions of a manager in a new situation, when solving a problem with which he is faced for the first time. Among my acquaintances are two deputy directors--A. Avanesov and B. Babayev. Each of them has his own point of view on how to act when encountering a new task. Here is what they say.

Avanesov

When I have to deal with some new issue I try to obtain as much information as possible. I know from experience that sometimes the solution comes as a result of the fact that the information about the problem is fairly complete. Moreover certain problems arise exclusively because of inadequate knowledge. This is one aspect. The second consists in how to gather information. Experience tells us that it is best of all to turn to co-workers and subordinates. This source is even better since while gathering information the workers inevitably find some path to the solution. The third issue is how to make sure that the subordinates are willing to share their views and give advice to the manager. And practice suggests the answer here.

I prefer to talk with each subordinate individually, and to do this I go to their working position and ask what they know about some matter that is important to everyone, and what is their opinion about the possibilities of resolving it. I write down the essence of the suggestions and return to my office. Having sorted out the information and thought about it, I make a decision and immediately inform the workers about it, not forgetting to mention the valuable information I gained from conversations with them. When I begin to implement the decision my tasks are essentially facilitated. What is the process of implementing a decision? It is distribution of assignments among subordinates in keeping with the specific nature of the task and the capabilities, knowledge and skills of the workers. The previous discussions

will help in this too. For those whom I questioned in the first place have indicated what they understand most and what is most interesting to them. And if they have suggested a solution, it is easiest to enlist them for its implementation. I think that the most important thing for a manager is the ability to rapidly reveal the capabilities, opportunities and desires of his subordinates. I try to act rapidly, in keeping this rule.

Babayev

When I encounter a new situation or some problem I immediately think about my subordinates: both because this pertains to all of us and not just me, and because one head is better than two. I think about the situation, consult with the director and decide on variants of a solution. Then I call a conference and we gather together to think about, understand and figure out how and what. Just before the conference the workers can come to me with their suggestions. I prefer collective forms because this is the only way one can obtain an exhaustive analysis, only during the course of discussion, mutual exchange of information is it possible to reveal what has been left out by each one individually and to work out a solution.

Moreover, I prefer unanimity, coordination of actions regarding the solution that we adopt, and since it is a collective one there is more probability that it will be carried out rapidly, with the active participation of all workers. With collective discussion everyone knows and understands the compromises that have been found and acts subsequently with an understanding of the complexity of the problem. Collective discussion is also convenient because everyone receives information and assignments firsthand, and there is no need to fear the "corrupt telephone."

My practice in solving problems has not let me down once as far as I can recall. Obviously I have therefore come to the conviction that the main merit of a manager is the ability to conduct a discussion effectively, an exchange of opinions, information and experience among workers, and to achieve agreement in the implementation of common decisions.

Now you know how Avanesov and Babayev act when solving new problems. Which style of behavior seems preferable to you?



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CAUSES, POSSIBLE REMEMDIES FOR MIGRAINE HEADACHES ADDRESSED

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[Text] This question cannot but bother a subordinate who is opening the door to the boss's office. For it is impossible to speak with a person who's head is "splitting in two," and sometimes it is dangerous--your every word, your every sound resounds in his brain with another burst of pain . . . . It is difficult to find a person who has never been a victim of this. This extremely unpleasant feeling can be brought about by a multitude of factors and have the most varied forms. Naturally, the methods of treating it also vary.

According to data from American statistics, about 42 million United States citizens suffer from chronic headaches, and they annually spend more than 400 million dollars on all kinds of pain killers. And the losses to the American economy because of absenteeism of people suffering with headaches are estimated by one of the eminent American specialists in this area, the president of the National Institute of Migraines in Chicago, Dr. Seymour Diamond in the amount of 5 billion dollars a year. This means that the problem of the headache is growing from a personal misfortune of the person suffering from it into a large medical and economic problem in whose solution scientists of many countries of the world are engaged. It is simply impossible to discuss all the recommendations in a brief article, and therefore it is probably better to deal with only one aspect, one variety of the headache--the "director's migraine."

The word "migraine" has disappeared from our vocabulary because it has long been considered a "disease of aristocratic ladies." It was written plainly in prerevolutionary neurology textbooks: "The migraine is a disease of high society with which mainly women suffer." The only thing true in this statement is that women really do suffer from migraines 4 times more frequently than men. But, alas, the number of men subject to migraines is fairly large since this is an extremely "democratic" ailment and affects people without taking their social position into account. True, management workers suffer with migraines considerably more frequently.

This is related, of course, not so much to the management position itself as to the peculiarities of the nature of people who reach this position. More precisely, the type of nervous activity that dictates the nature of a person

also predetermines his inclination toward migraines. Intelligent, spiritually active, impressive, methodical and pedantic people are predisposed to migraines. They often set high goals for themselves in their work. At the same time they have to restrain their emotions, suppressing tears or bursts of anger. Unfortunately, they do not have enough ability to actively rest and shut themselves off from the concerns of the job . . . .

The nervous system of these people withstands loads poorly, the blood pressure usually changes sharply in either direction, they have frequent palpitations and they have sudden flushing or paleness when they have strong emotions. Not everything is in order with their digestive system either. Moreover, the migraine is among the inherited ailments and if your parents suffered from it there is a great possibility that you have at some time experienced attacks of this ailment.

The migraine should not be confused with the ordinary headache--it is quite a special ailment which manifests itself not only in a severe headache, but also in a feeling of constraint, dizziness, increased sensitivity to light, disturbances of the circulation and vision, and sometimes even hallucinations. Many of the heroes in "Alice in Wonderland" appeared to Lewis Carroll during hallucinations that were caused by severe migraine attacks.

Although a migraine attack usually begins like thunder in a clear sky, it is still preceded by certain symptoms whose early recognition will help to ease the attack or even prevent it. Frequently even a couple of hours before the attack a person will begin to feel that any noise or any bright spot irritates him, he becomes sleepy and suddenly he becomes hungry. Against this background any problem or any tension is enough to manifest the signs of a migraine: the pulse becomes more rapid, the blood pressure increases, the blood rushes to the face, tears appear in the eyes, there is a slight pinching. Now the attack is not far off. A typical feature of the migraine is manifested in the fact that the pain covers only one side of the head and it reaches its maximum within two hours and then for painfully long hours it slowly subsides. Usually the pain begins over the eye, in the temple or in the back of the head and it is like pin pricks (although there can also be other individual manifestations). For some people the attacks of pain accompany an extremely severe condition.

Where do migraine attacks begin? So far modern medicine does not have a single answer to this question. The most widespread opinion is that the migraine begins with the negative effects on the organism of some stress factor, for example, a job conflict or a personal one. There is a spasmodic contraction of the vessels, to which the organism reacts by emitting substances into the blood which are capable of expanding the vessels. We experience the movement of the walls of the vessels by a beating of the pulse in the temple or above the eye. A great expansion of the vessels after the spasm leads to a retardation of the blood flow. This, in turn, reduces the speed at which the organism removes metabolic products, many of which are retained in the blood and irritate the nerve endings. The pain signals begin to enter the brain like an avalanche from all parts of the organism, even from the smallest capillaries which, with a reduced blood flow are poorly supplied with blood.

Reaction to stress, incidentally, even positive stress, causes an attack in people who suffer with migraines. Any of the following factors can cause this.

Alcohol. Alcohol is especially frequently the cause of a migraine in women, and they especially should avoid red wine and champagne.

Improper diet. People who suffer with migraines should exclude from their diet cheese, tomatoes, fat, ham, meat items, onions, garlic, legumes and chocolate.

Changes in the weather.

Light effects. A sharp or rapid change in the strength of the light causes attacks in many people.

Medicine. Swallowing tablets for headaches or universal pain killers when one has a migraine can only make the ailment worse and bring about more attacks.

How does one fight against migraines? Unfortunately, modern medicine still does not have a single answer to this question, although research is being conducted very intensively in this area in all countries of the world.

First of all, it is necessary to try to understand to what precisely, to which of the aforementioned factors your organism is responding with an attack, and then try to avoid this factor. Of course, it easy to protect oneself from bright sunlight--it is enough to wear dark glasses. It is more difficult to observe an anti-migraine diet and even almost impossible, especially for the manager, to arrange a life without troubles and stress. But this does not mean that you have no other way out than to take a pain killer. This solution should be the last resort, after first trying to prevent the attack by more natural methods that do not poison the organism. But what are these methods?

First of all--baths. One can apply two kinds of water procedures--cold and hot. In the former case you fill the bathtub with water heated to 12-18 degrees centigrade so that it reaches three-fourths of the way up the shin. Then one begins to walk in the bath, raising the water level higher with each step and one does that for 15-30 seconds. When leaving the bath, we do not rub the legs, but simply remove the drops of water from them with the palm. After this one puts warm woolen stockings on the wet legs and runs rapidly in place for several minutes until there is a pleasant warm feeling.

The head pain passes very quickly after warm water procedures as well. For this one fills the tub with water up to the middle of the shin. The temperature of the water is 36 degrees centigrade. Then one sits on the edge of the tub and, holding the legs in the water for 12 minutes, adds more and more hot water until in the end the temperature of the water in the tub has increased to 40 degrees centigrade. It is also recommended to add a tablespoon of mustard powder. This procedure should be done in a warm room and the hot water

should be poured in slowly. If the pulse beat increases sharply during the procedure and one feels weak, one must leave the bath immediately.

An effective means of fighting migraines and head pains (especially in women) is mineral water with a high content of carbon dioxide--1-2 glasses until it is enough to relieve the attack. Juices are also effective, especially wild elderberry juice and melisse. An excellent means of fighting against headaches is tea made of rosemary (1 teaspoon of rosemary per glass of boiling water). The essential oil of rosemary has the capability of expanding blood vessels and thus improving blood circulation. Rosemary can be added to food. Plants with medicinal properties can be used for migraines not only in the form of drinks, but they can also be added to water for herbal baths. Baths are recommended with such herbs as mint, lavender, medicinal melisse, rosemary and valerian.

But an attack of a headache frequently reaches its victim not at home where he can take a bath or drink a medicinal beverage, but at work. What should he do in this case?

In the first place, massage can help here. This can be done by two methods. The first method consists in rubbing the head with the knuckles, first lightly and then increasingly strongly on both sides of the back of the head through the neck in the direction of the shoulders. The movement of the fingers can be circular or longitudinal. The second method of massage includes rubbing the temples with the knuckles in a circular movement, and the increasingly strongly. Then the back of the head is massaged in a similar way. Such a massage produces a double effect: it improves blood circulation and it also removes the painful spasm of the muscles of the head and neck which frequently accompany a migraine. One must remember that one cannot squeeze the skin or rub too hard or with too much strength.

There is another method--point massage. With the first feelings of pain the thumbs of both hands are pressed strongly on points located between the end of the eyebrow and the ear. The considerable sensitivity of the skin precisely on this section of the temple helps to find them. With a light pressure on the skin of the temple with the index finger you will find the necessary point without any special difficulty. One must press with the thumbs on both sides of the head at the same time, regularly and with the same force for 15-30 seconds. The second sensitive point is located approximately 4 centimeters behind the helix at the height of the lower edge.

Auto-suggestion is an effective method of fighting against migraines and head pains. If you have already mastered this method all you have to do is use the following formula of suggestion: a breeze is pleasantly cooling my brow, I no longer feel the pressure or pain in my head.

And if none of the methods described above help, then it is necessary to turn to medicines. In the opinion of specialists, for ordinary headaches aspirin produces a quite satisfactory result. There is no need to take any super strength medicines. In order not to lose the responsiveness to aspirin, one can alternate it with troychatka.

In recent years physicians have been increasingly coming to the opinion that one can win a victory over migraines not with increasingly strong medicines, but by methods through which the sufferers themselves suppress and avoid attacks of migraines and head pain.

Some of the approved methods of this training are based on the theory of conditioned responses of Pavlov. For example, the patient is hooked up to an electromiograph which is capable of measuring the muscle tone. A special attachment to the electromiograph gives a sharp penetrating sound until the patient releases his tension. As soon as he relaxes, the sound immediately stops. After several sessions the patient becomes able to relax rapidly even without the help of the special device. Similar methods are used for producing in people who suffer with migraines the ability to control their blood criculation and even the frequency of the electric brain waves which are measured with an electroencephalograph. All this helps to eliminate the physical factors causing migraines even before the painful symptoms appear.

In particular, with chronic migraines a method directed toward producing in the patient the ability to raise the temperature of the skin of one of the fingers of the hand by 10-15 degrees has proved itself. It is still not completely clear how this procedure affects the blood circulation and prevents migraines even in chronic patients.

On the other hand, in the opinion of specialists, hopes of treating migraines and headaches with hypnosis have not been justified at all. Nor should a person who suffers with migraines count especially on the curative properties of coffee, which can ease the pain only with the weakest forms of migraines. Hopes that have been placed in alcoholic drinks are even more false.

The perfidy of the migraine lies in the fact that it affects, unfortunately, the most valuable workers--intelligent, hard working, honorable people who are serious about their duties. These people comprise too valuable a part of the labor potential of any organization and the country as a whole to allow themselves a negligent attitude toward the problem of the "simple headache."



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PROBLEM-SOLVING APPROACHES CONDITIONED BY SITUATIONAL, 'TECHNICAL' FACTORS

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[Article by B. P. Zhdanov, candidate of economic sciences (Nobosibirsk): "Which Style is More Effective"]

[Text] Answer

The style of the manager is the subject of numerous works of specialists. The discussions about it continue. In this case the opinions will also probably vary.

Many think that it is necessary to evaluate the style of management in terms of actions in concrete situations: each situation requires its own style, and even one in the same situation requires various styles from various managers, as in the suggested problem.

The difference between manager A (Avanesov) and B (Babayev) is not immediately obvious. Both turn to the knowledge and experience of their subordinates before making a decision, and both coordinate their opinion with the opinion of co-workers since they are sure that this path is the most direct one to the implementation of the earmarked measures. The entire matter amounts to how they make the decisions. Babayev is more of a "collectivist" while Avanesov is more of an autocrat, although both submit the decision to the people who are to carry it out and try to show that it belongs to the latter. But Babayev also arranges a procedure for making the decision in such a way as to show the participants that it is the result of the efforts of all, even if nobody except himself was on the right path. Avanesov, regardless of how he thanked his co-workers for assistance, made the decision unilaterally.

There is another circumstance, as it were, of a technical nature. Administration has a tendency toward complication. There are more and more changes in various spheres of the enterprise, its collective and the environment, and therefore the number of problems increases. It is impossible to deal with each of them and it is hardly reasonable. Questionning co-workers would take a lot of time. It would be simpler to gather the people together having asked each of them beforehand to prepare themselves for some specific question. With the proper organization, collective discussion makes it possible

to reveal some things that might slip by in individual discussions. It turns out that Avanesov wants to know as much as possible but loses the effect of collective clarification of the truth. True, the danger of too many conferences appears here.

Generally speaking, in the practical session I have touched on only one aspect of the style of administration. But there is also another one. Is it true that both managers are oriented toward solving problems which arise before them unexpectedly? For it is also possible to predict their appearance . . . .

Incidentally, this is already the subject for another practical session.



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MURPHY'S LAW, ASSOCIATED COROLLARIES

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[Article by Artur Blokh, translation by L. Belyayeva: "Murphy's Law"]

[Text] The Art of Planning

The First Law of Adjustment. Information leading to a mandatory change in the plan comes to the author of this plan when and only when the blueprints have already been completed.

Consequence. Simple cases when there is clearly one correct variant and clearly one incorrect variant, it is frequently more reasonable to select the incorrect one in order to get to the inevitable corrections more quickly.

Second Law of Adjustment. The more inoffensive the change appears to be, the greater will be its influence in the future and the more the blueprints will have to be changed.

Law of the Lost Inch. When working on any plan not a single pipe size can be established correctly after 4:40 on Friday afternoon.

Consequence. A correct result will be obvious at 9:01 a.m. on Monday.

The Law of Applied Confusion. A part which the plant has forgotten to deliver provides for 75 percent of the volume of deliveries. Having looked into the situation you will easily find out that the plants not only forgot to deliver it, but 50 percent of the time does not produce it at all.

Consequences.

1. The delivery to the truck, which usually requires one day, takes 5 days if you wait for one particular truck.

2. Having added two weeks to the deadline included in the schedule for unforeseen delays, add another two weeks for the unforeseeability of the unforeseen delays themselves.

Vyshkovsky's Theorem. Regardless of the unit of measurement used by the supplier or purchaser, the producer will use his own arbitrary units of measurement which are translated into the units of the supplier or purchaser with strange and unnatural coefficients of recalculation.

Snafu's Equation.

1. In a problem with n equations there will always be n + 1 unknowns.

2. The most necessary object or the most necessary dose of information will be the least accessible.

3. As soon as you have tested all possible methods of solving a problem and have not found a suitable one, a solution will be found which is simple and obvious for all other people.

Miksh's Law. If a rope has one end this means that it should have another one.

Laws of Machine Programming.

1. Any program in operation is outdated.

2. Any program is more expensive and requires more time expenditures than was supposed.

3. If a program is fully debugged it will have to be adjusted.

4. Any program tries to occupy all of the available memory.

5. The value of a program is directly proportional to the weight of its "output."

6. The complexity of a program grows until it exceeds the capability of the programmer.

Trutman's Postulates on Programming.

1. The grossest mistake will be revealed only when the program has been tested in production for at least a half a year.

2. Control punch cards which absolutely can not be in incorrect order will be mixed up.

3. If a special person is assigned to control purely initial information, there will be an inventive idiot who will think of a way for incorrect information to go through this control.

4. Unprintable jargon is the language which absolutely all programmers have mastered to perfection.

Dzhilb's Laws of Reliability.

1. Computers are unreliable, but people are even more unreliable.

2. Any system that depends on human reliability is unreliable.

3. The number of mistakes which cannot be discovered is infinite and in counterbalance to the number of mistakes that can be discovered it is finite by definition.

4. In searching for increased reliability funds will be invested until they exceed the amount of losses from inevitable mistakes or until somebody demands that some kind of useful work be done.

Brooks' Law. An increase in the number of participants in preparing a late program only retards the process.

Laws of the Computer World According to Golub.

1. An imprecisely balanced program requires 3 times more time than was assumed; and a carefully balanced one requires only twice as much.

2. A group working on a program has a revulsion for weekly accounts about results that are achieved since it shows too clearly the lack of these.

The Show Principle. Create a system which even a fool can use and only a fool will want to use it.

The Art of Communicating with Machines

The IBM Principle. The machine should work, and man should think.

The Law of the Caprice of Nature. One cannot correctly determine beforehand which side his bread will be buttered on.

The Law of Selective Gravity. An object falls in such a way as to cause the greatest damage.

The Jennings Consequence. The probability that a slice of bread will fall with the buttered side down is directly proportional to the cost of the rug.

Klipstein's Consequence. The most fragile part will be dropped.

The Law of Antony's Shop. Any instrument, if it is dropped, will fall in the most inaccessible corner of the shop.

Consequence. While rolling into the corner it will first hit you on your toes.

The Principle of Spare Parts. When looking for small spare parts that have disappeared from the working position the probability of finding them is directly proportional to the size of the part and reversely proportional to its importance for completing the work.

The Law of the Floor. One cannot fall from the floor.

Watson's Law. The reliability of equipment is in inverse proportion to the number and position of people observing it.

Vyshkovsky's Second Law. Everything can be adjusted if you turn it around in your hands long enough.

Lowry's Law. If a part does not work, push on it. If it breaks--never mind: it had to be replaced anyway.

Schmidt's Law. If a machine is damaged long enough it will break.

Fudd's First Law of Counteraction. Push something heavy and it will turn over.

Antony's Law of Force. Do not waste force, use a hammer more!

Horner's Postulate. Experience increases in direct proportion to the equipment that is out of order.

Kan's Axiom. If nothing else helps, finally read the directions!

The Art of Scientific Research

Murphy's Law of Scientific Research. In defense of your theory you can always conduct a sufficient amount of research.

Meyer's Law. If the facts do not confirm the theory it is necessary to get rid of them.

Consequences.

1. The better the theory the more verbose it is.

2. An experiment can be considered successful if it is necessary to discard no more than 50 percent of the measurements in order to make it correspond to the theory.

Eddington's Theory. The number of hypotheses of a given phenomenon is in inverse proportion to the amount of knowledge about it.

The Fourth Law of Verification. Regardless of how painstakingly and carefully you have prepared a sample, they can always tell you that it is incorrect and inapplicable to the given problem.

The Rule of Precision. When working on a solution to a problem it is always useful to know the answer.

Yang's Law. All great discoveries are made from mistakes.

Khoar's Law of Large Problems. Within every large problem sits a small one which is trying to make its way out.

Fett's Law of the Laboratory. Never try to repeat a successful experiment.

Cooper's Law. If you do not understand some word in a technical text, do not pay any attention to it. The text will retain all of its meaning without it.

Parkinson's Sixth Law. Progress of science is inversely proportional to the number of journals that are published.

The Principle of Completeness of the Picture. Scientists are so intent upon their own work that they do not see a single phenomenon as a whole, including their own research.

Meskiman's Law. There is never enough time to perform a job properly, but there is time to do it over.

Hierarchology

Heller's Law. The first myth of the science of administration is that it exists.

Johnson's Consequence. Nobody knows what happens in reality within a given organization.

The Peter Principle. In any hierarchical system every worker strives to reach his level of incompetence.

Consequences.

1. With time every position will be filled by an employee who is incompetent to perform his duties.

2. Work is done by those employees who have still not reached their level of incompetence.

Peter's Transformation. Internal agreement is valued more highly than efficient work.

Peter's Hidden Postulate According to Godin. Every employee begins at his level of competence.

Peter's Observation. Excessive competence is less desirable than incompetence.

Peter's Law of Evolution. Competence always contains a grain of incompetence.

Peter's Law of Interchangeability. Show concern for the flies and the elephants will be concerned about themselves.

Peter's Placebo.* An ounce of reputation is worth a pound of work.

Vale's Axiom. In any organization work is drawn to the lowest level of the hierarchy.

Imhoff's Law. Any bureaucratic organization is similar to a sedimentation tank. The largest pieces always try to rise to the surface . . . .

Parkinson's Third Law. Expansion means complication, and complication means disintegration.

Parkinson's Fourth Law. The number of people in a working group has the tendency to increase regardless of the amount of work that needs to be done.

Parkinson's Fifth Law. If there is a way of postponing an important decision a real bureaucrat will always take advantage of it.

Parkinson's Axioms.

1. Any supervisor tries to increase the number of his subordinates and not his competitors.

2. Supervisors create work for each other.

Cornwall's Law. The management is inclined to give work to those who are least capable of doing it.

Zimmerga's Law of Voluntary Labor. People always agree to do work when there is no longer a need for it.

Law of Communications. An inevitable result of the expanding communications among various levels of the hierarchy is a growing area of misunderstanding.

Sparks' Ten Rules for the Manager of a Project.

1. Try to look as important as possible.

2. Try to make sure that people see you in the company of important people.

3. Speak confidently and rely only on obvious facts.

4. Do not enter into arguments. And if you end up in a difficult situation ask a question that has nothing to do with the matter and while your opponent is trying to figure out what is happening quickly change the subject!

5. Listen attentively when others are discussing a problem. This will give you a chance to find fault with someone's banal conclusion and destroy your opponent.

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*A harmless medication prescribed to placate a patient.

6. If a subordinate asks you an essential question, stare at him like he is crazy. If he looks away, ask him the same question.

7. Obtain generous allocations for health, but don't make it public.

8. When leaving the office always walk as if you are in a great hurry. This will prevent subordinates and the management from asking you questions.

9. Keep the door to your office closed. This will make it more difficult for visitors to get to you and will give them the impression that you are constantly holding important conferences.

10. Give all orders verbally. Do not leave records or documents that can turn against you.

Jay's First Law of Management. To be able to change the state of affairs is the main quality of a manager. But to change it before others do is a true sign of a creative individual.

Match's Aphorism. A fool who occupies a high position is like a person on the top of a mountain: everything seems small to him, and he himself seems small to everyone else.

H. L. Menken's Law. He who can does. He who cannot teaches.

Martin's Addition. He who cannot teach administers.

Armenian Axiom. Any order which can be incorrectly understood is understood incorrectly.

Jones' Law. A person who can smile during failures is undoubtedly thinking about the person he can blame for the next failure.

(Conclusion in Next Issue)



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